Polygraph Testing Found Flawed • Amityville Horror Revisited • Mars Effect Follow-Up

Skeptical Inquirer

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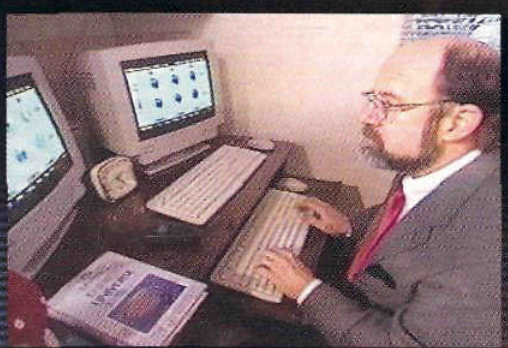
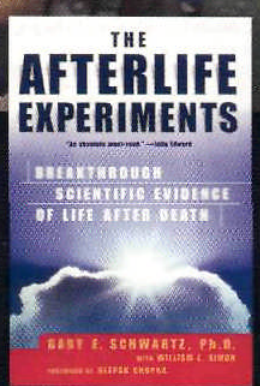
How *Not* to Test Mediums

Critiquing the Afterlife Experiments





Beliefs on Trial and the Standard of Reasonableness

Placebos, Nocebos, and Chiropractic

Pliny the Elder: Credulist, Skeptic, or Both?

Mark Twain Debunks a Mesmerizer

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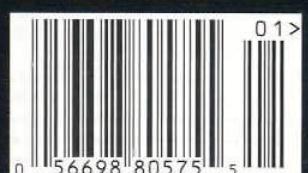

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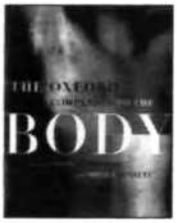

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EDITOR'S NOTE

Death of the Afterlife Experiments?

Every few years seems to bring a new set of "best case" claims of scientific evidence for psychic powers. The latest are the "afterlife" experiments by Gary E. Schwartz, professor of psychology and psychiatry at the University of Arizona. In a series of experiments that began garnering publicity in 1997, Schwartz and coworkers have done what they contend are good scientific studies of mediums such as John Edward. Schwartz's credentials as a Harvard-trained professor and his position have lent seeming credibility to this work. He asserts that this work supports the mediums' claims that they are actually communicating with the dead. Schwartz has collected these studies in a new book, *The Afterlife Experiments.*

In this issue we present an authoritative, thorough, detailed evaluation of Schwartz's evidence by psychologist Ray Hyman. It is longer than most analyses we publish, but we felt the seriousness of both Schwartz's claims and of Hyman's evaluations of them merit the extra space. The article is fascinating and instructive reading. Hyman, emeritus professor of psychology at the University of Oregon, has devoted more than half a century to the study of psychic readings and cold readings. He is arguably *the* most insightful, careful, and respected critic of serious parapsychological claims.

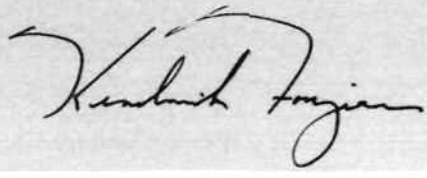
Schwartz has made revolutionary claims that he contends are backed up by competent scientific evidence. "This," says Hyman bluntly, "is badly mistaken. Probably no other extended program in psychical research deviates so much from accepted norms of scientific methodology as this one does."

Hyman describes eleven types of "major flaws" in Schwartz's research. Any one "by itself would suffice to invalidate his experiments as acceptable evidence."

These major flaws include inappropriate control comparisons, inadequate precautions against fraud and sensory leakage, failure to use double-blind procedures, inadequate "blinding" in "single-blind experiments," failure to independently check on facts the sitters endorsed as true, and so on. In addition to these defects in the conduct of the experiments and the gathering of the data, he finds other problems in the way Schwartz interprets and presents the results of his research, such as using inappropriate probability calculations, inflating significance levels, and reinterpreting failures as successes.

Hyman also analyzes a fifth experiment that *was* conducted double-blind but shows why Schwartz's claims about its "breathtaking" success don't stand up at all. "By commonly accepted scientific practice, the experiment has failed to support the hypothesis it was planned to test."

Hyman says the worst mistake Schwartz and his colleagues made was publishing "their very inadequate studies" and demanding that skeptics "'explain away' their defective data." By doing so, he says, they, and the journals that published the work, have lost credibility. The studies are "methodologically defective" in important ways, Hyman says, and as a result the claims have no scientific validity.



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National Academy of Sciences Report Says Polygraph Testing Too Flawed for Security Screening

KENDRICK FRAZIER

A long-awaited report on polygraphs from the National Academy of Sciences says the U.S. Government should not rely on polygraph examinations for screening employees to identify spies or other national security risks because the test results are too inaccurate when used this way.

Much of the evidence assessing the validity of polygraphs, popularly called "lie detectors," is based on their use in the investigation of specific, known events such as crimes. In these cases, said the NAS committee, lie-detector tests can differentiate lying from telling the truth at rates well above chance, but they are far from perfect.

The report, issued at a news conference at the Academy's headquarters in Washington October 8, 2002 (www.nas.edu), concludes that the polygraph's accuracy is not good enough for security screening for two reasons. First, accuracy is almost certainly lower when the tests are used this way rather than in the investigation of specific incidents. Second, the large groups of people being checked include only a tiny percentage of individuals who are guilty of the targeted offenses; tests that are sensitive enough to spot most violators will also mistakenly mark large numbers of innocent test takers as guilty. Tests that produce few of these types of errors, such as those currently used by several federal agencies, will not catch most major security violators—and still will incorrectly flag truthful people as deceptive.

"National security is too important to be left to such a blunt instrument," said Stephen E. Fienberg, chair of the committee that wrote the report and professor of statistics and computer science at Carnegie Mellon University. "The belief in its accuracy goes beyond what the evidence suggests."

Concerned about potential security violations at its national laboratories and criticized about congressionally mandated plans to expand its polygraph program, the U.S. Department of Energy asked the Academy to conduct a study of the scientific validity and reliability of polygraph testing to identify personnel who may jeopardize national security. Employees who work in sensitive positions at DOE labs and similar federal sites are subject to testing by law. However, the new report says that when polygraph exams are used this way, the drawbacks of current polygraph exams are abundantly clear.

Stephen E. Fienberg, Professor of Statistics and Computer Science, Carnegie Mellon University, Pittsburgh, and Chair of the Committee to Review the Scientific Evidence on the Polygraph.

The proposed wider use of polygraphs as a screening tool at the national labs became intensely controversial among many labs scientists. They criticized the idea as highly damaging to morale due to the large false-positive rates in polygraph exams, the lack of any serious scientific underpinning to polygraphy, and history showing that convicted spies had passed polygraph tests while they had been engaged in espionage. (See "Polygraphs and the National Labs: Dangerous Ruse Undermines National Security," Commentary by Alan P. Zelicoff, SKEPTICAL INQUIRER, July/August 2001.)

The NAS committee said polygraph testing rests on weak scientific underpinnings. And much of the available evidence for judging its validity lacks scientific rigor. "Almost a century of research in scientific psychology and physiology provides little basis for the expectation that a polygraph test could have extremely high accuracy," says the report.

Using these tests in preemployment screening is even more complicated because examiners make inferences about individuals' future behavior based on information about previous deeds, which may differ widely from the offenses authorities hope to prevent. The committee concluded that polygraph testing is less accurate for employee screening than for investigating specific incidents.

On a more basic level, theories about how deception is linked to the physiological responses being measured have not been verified, the report says. A variety of mental and physical factors, such as anxiety about being tested, can affect polygraph results—making the technique susceptible to error. Also, people can learn ways to mimic some physiological responses of truthful test takers. This is a particular concern when dealing with deceptive individuals who have strong incentives to perfect certain "countermeasures" or ploys

to appear honest and avoid detection. Available research sheds little light on how well examiners can systematically expose such people.

Despite its weak science base, polygraph testing is commonly believed to be a highly valid procedure for detecting lies. The report notes that popular culture and the mass media often portray lie detectors as magical mind-reading machines. The mystique surrounding the exams—instead of a solid scientific foundation—may account for much of their usefulness to authorities, the committee noted. Examiners' field reports and indirect scientific evidence indicate that testing programs may deter potential security violators or elicit confessions from some offenders who, unaware of the tests' weaknesses, believe that a lie detector would surely catch them.

The federal government relies heavily on polygraph testing to identify people who have committed or might commit espionage and sabotage. However, the report warns that overconfidence in this method may endanger national security objectives by creating a false sense of security among lawmakers, government employees in sensitive jobs, and the general public. As a result, other ways to ensure safety could be neglected, creating situations that might increase the risk of security lapses. Also, retention of highly skilled and valuable government workers could suffer because employees might fear being falsely identified as dishonest.

The report says some potential alternatives to polygraphs show promise, but none has led to scientific breakthroughs in lie detection. Moreover, the federal government has not seriously developed the science base of any method to detect deception through the analysis of individuals' psychological and physiological reactions.

The study was sponsored by the Department of Energy, whose National Nuclear Security Administration said the agencies would "carefully review" the report and consider the findings in developing a new polygraph program over the ensuing several months. U.S. Senators Pete Domenici and Jeff Bingaman of New Mexico sponsored legislation in 2001 requiring DOE to overhaul its polygraph program based on the findings in the NAS report, which Bingaman had requested. It now has six months to do so. Two of the nation's three national laboratories with responsibilities for nuclear weapons are located in New Mexico.

Bingaman and Domenici issued a joint statement after the report was released calling on DOE to "abolish its current policy of using extensive polygraph testing as a screening tool" for DOE and national defense labs employees. Added Bingaman, Chairman of the Energy and Natural Resources Committee, "From a practical standpoint, this policy never made sense to me. Now we have scientific evidence that it doesn't work. It's time to change this flawed policy."

Kendrick Frazier is Editor of the SKEPTICAL INQUIRER.

Sandia Tests MOLE Detector, Finds Only Chance Performance

The MOLE programmable detection system, a device advertised for an ability to detect a variety of substances, including explosives, has been tested in double-blind experiments by Sandia National Laboratories and found to perform no better than random chance.

The tests were undertaken at the request of the Rocky Mountain office of the National Law Enforcement and Corrections Technology Center (NLECTC) in Denver. Sandia, a U.S. Department of Energy national laboratory headquartered in Albuquerque, New Mexico, is the technology partner for the center, which is a program funded by the National Institute of Justice, the research arm of the U.S. Department of Justice.

The MOLE programmable detection system, made by Global Technical Ltd. of Kent, United Kingdom, has a search handle with a radio-type antenna that can freely pivot. The product is advertised to operate using static electricity only and requiring no batteries or other power sources. The antenna can be balanced to protrude in front of the operator but is free to swing to either side with a slight tilt of the operator's hand. A positive indication is said to occur when the antenna pivots across the operator's body and points toward the target material.

Prior to operation a specific programming card designating the substance to be searched for is inserted into a cardholder clipped to the operator's belt.

MOLE was brought to the attention of NLECTC and subsequently an offer to demonstrate the product was made. The NLECTC contacted Sandia for assistance in conducting a field test of MOLE.

Dale Murray of Sandia's Entry Control and Contraband Detection Department was assigned to help design and conduct the field test.

Because the MOLE's detection capability is subject to human interaction and interpretation, Sandia suggested that the test should be "double blind." This is a typical test approach used when the outcome of trials is dependent on human influences or interpretation.

The field test was conducted earlier this year at NLECTC's office in Denver.

The test plan was designed to be simple to implement but scientifically and statistically rigorous.

Four cardboard boxes were labeled to represent "heads" and "tails" of a coin toss (Box 1 labeled HH for heads-heads, Box 2 HT for heads-tails, etc.) This way, the box in which to place the target substance could be determined in a random fashion with two coin tosses. All this ensured that the location for each trial would be truly random.

As with any double-blind test, those administering the test were separated from those being tested so that the testers could not subconsciously provide

nonverbal cues to indicate where the target material is located.

The four boxes were placed in the four corners of a hall extending around the perimeter of the building's second floor. This allowed sufficient separation of the boxes for unique identification and ample angular access to each (90 degrees) for triangulation of positions, if necessary.

For the demonstrations and tests approximately 20 grams of C4 explosive were placed in a plastic bag, which was tied shut and placed inside a plastic 35 mm film canister. Then the lid was placed on the canister. A sales representative, Robert Balais, showed how MOLE worked, first searching for a shotgun shell and a small-caliber bullet. He stood stationary and the antenna moved, pointing to the ammunition, in plain view of everyone. He did the same thing with the explosive material when it was in plain view on the conference room table. He stated that he had been better than 95 percent accurate in locating and identifying substances with MOLE.

He agreed to the planned test conditions—having the explosive material placed in one of the four cardboard boxes at the corners of the hall.

First a baseline test was conducted, to make sure the test parameters were agreeable to all. The target was placed in a box, selected by dice throw, in full view of every participant. Five baseline trails were conducted, and each time Balais used the MOLE to point to the (known) box, even though he said he didn't need such prior knowledge. Such baseline trials are considered essential to make sure any test problems are identified and corrected before the formal testing.

With the baseline trial complete, he stated that the test parameters were acceptable and fair and said he had no trouble locating the targets.

The participants then divided into two groups and proceeded to the double-blind phase of the testing. The search group was not privy to the coin toss and placement of the target, and the placement group was not present for the actual search.

Twenty separate double-blind trials were conducted. Following the tests, the participants reconvened to score the results.

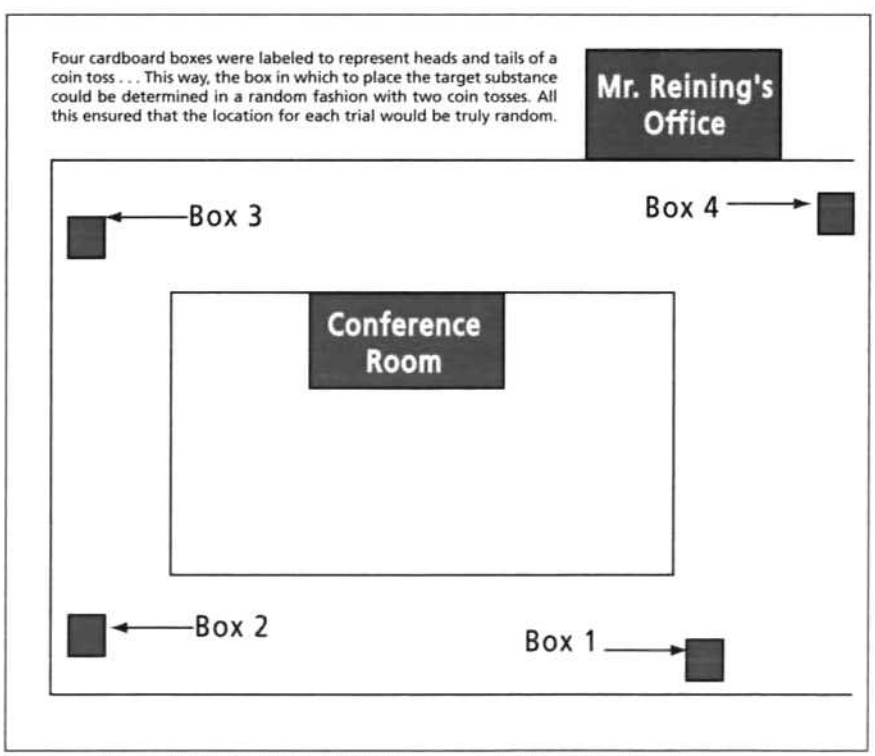
Since the target was in one of four locations, by random selection alone it is expected that of the 20 trials, approximately 5 selections would be the correct location. Murray said the probabilities, based on random chance, are that the three most likely results would be 5, 4, and 6 correct selections. Summing probabilities, he said, shows that randomly selecting correct boxes between 3 and 7 times during a 20-trial test would be expected to occur 81 percent of the time.

However, if the product worked as advertised, he said, the number of correctly identified boxes would be statistically more significant, at least 12 to 13 correct "hits," or a little better than half. In fact, the test results showed that correct boxes had been selected only 6 times, consistent with random chance.

"Based on statistical analysis of the double-blind test results, the MOLE performs no better than a random selection process," concludes Murray in the Sandia report he authored, "Double-Blind Field Evaluation of the MOLE Programmable Detection System." The full report is on an NLECTC Web page at: www.nlectc.org/virlib/TopicList.asp?intTopicID=34.

In follow-up discussions Balais expressed puzzlement at the low performance of MOLE in the tests. He suggested that perhaps the four cardboard box containers had somehow all become contaminated with explosive powder. This seemed unlikely, but the boxes were all wrapped in clear plastic and sent to Sandia for analysis with an ion mobility spectroscopy explosives detector capable of detecting less than a single fingerprint of explosive material. The results for all surfaces were negative. This, says the Sandia report, rules out any possibility that contamination occurred during the test.

The Sandia report notes that MOLE appears "physically nearly identical" to a product Sandia examined in October 1995 called the Quadro Tracker, then marketed by a South Carolina company.


Four cardboard boxes were labeled to represent heads and tails of a coin toss . . . This way, the box in which to place the target substance could be determined in a random fashion with two coin tosses. All this ensured that the location for each trial would be truly random.
Mr. Reining's Office
Box 3
Box 4
Conference Room
Box 2
Box 1

Floor plan of the double-blind field test of MOLE detector carried out by Sandia National Labs.

The visible physical differences between the two products appear to be the product labels and the handle-programming chip—interchangeable on the Quadro Tracker, permanently fixed on the MOLE. Additional information on the Quadro Tracker can be located by performing a search on the World Wide Web using the key words Quadro and Tracker.

This article appeared originally in the Sandia Lab News, *Sandia National Laboratories, Albuquerque, New Mexico.*

—Kendrick Frazier

Pop Singer's Death Reveals Visits to New Age 'Miracle Worker'

In April 2002, when pop singer Lisa "Left Eye" Lopes, of the successful R&B group TLC, died in a road accident in Honduras, it made international headlines. The reason she was in the Central American country, however, was less well reported.

Lopes was visiting a New Age health spa near Sambo Creek for one of her periodic "cleansing" treatments offered by a man known as "Dr. Sebi." In addition to a strict diet of various medicinal plants and herbs, visitors to the Usha Herbal Research Institute practice yoga, meditate, and take mud baths. Lopes had visited the facility regularly for years, and had recently purchased land nearby, planning to build a home there.

Sebi, whose real name is Albert Baldwin (or Alfred Bowman, depending on the source), has no actual medical training, though he claims on his Web site (www.sebithehealer.com) to be an "Intra-Cellular Therapist, Biochemist and Naturalist." Sebi claims that treatments such as his "African bio-electric cell food therapy" are effective for "reconnecting the African with the nutritional compounds designed by nature for their maximum health."

Though Lisa Lopes went to the village for "cleansings," many foreigners visit Sebi for his reputed miracle cures.

Lisa "Left Eye" Lopes. Tsuni/ImageDirect

Anyone with cash is welcome to be healed of whatever ails them by Sebi and his unorthodox treatments: "Yes, we offer what you consider to be a miracle. We call it common sense. Electric body. Electric therapy. With this method, diabetes, leukemia, sickle cell, impotence, blindness, AIDS, and many, many others have been cured or reversed."

Sebi claims to use the Bible as a guide to healing. He subscribes, at least in part, to the ancient belief that diseases are caused by an imbalance in the body's four humors: yellow bile, black bile, blood, and phlegm. It is this last substance that seems to have captured Sebi's imagination; he believes that all medical problems are caused by excessive (or contaminated) mucus: "Everything is mucus, from AIDS to blindness is mucus in the system that needs to be swept out." Apparently simply blowing one's nose is not sufficient to effect a cure; fasting and a diet of herbs are needed.

In 1997, Sebi was briefly arrested in New York on charges of publishing false health claims and practicing medicine without a license. Sebi does not deny the charge and in fact takes some measure of pride in it, devoting a page on his Web site to his version of the story.

A spokesman for the American embassy in the capital city of Tegucigalpa said that Lopes "got into the cultural-ethnic thing, and then into this New Age, pan-African spirituality. . . .There's a lot of strange things going on out there."

—Benjamin Radford

Benjamin Radford is Managing Editor of the SKEPTICAL INQUIRER.

Baraka Buys Bunk: Furore Over Poet's Conspiracy Paranoia

Amiri Baraka, formerly LeRoi Jones, is a well-known American playwright, poet, author, and activist, and one of the main leaders and inspirations of the Black Arts Movement.

Baraka recently found himself the center of controversy after reading a poem titled "Somebody Blew Up America" at the September 19, 2002, Geraldine R. Dodge Poetry Festival in Stanhope, New Jersey. In it, he asks who is responsible for a wide variety of current and historical atrocities, including the September 11, 2001, terrorist attacks on the World Trade Center. One verse in particular incited outrage among several prominent Jewish groups. The offending verses are as follows:

> Who knew the World Trade Center
> was gonna get bombed
> Who told 4,000 Israeli workers at the
> Twin Towers
> To stay home that day
> Why did Sharon stay away?

The verses allude to an anti-Semitic rumor that Israelis and Jews who worked at the World Trade Center knew about the terrorist attacks beforehand, and were absent from their jobs at the World Trade Center that day. The rumor, circulated by conspiracy theorists and less-than-professional news agencies (such as Lebanon's *Al-Manar* and Russia's *Pravda*), is baseless. It is often paired with the assertion

that Israel's intelligence agency, Mossad, orchestrated the attacks.

Interviewed by the *North Jersey News*, Shai Goldstein, New Jersey director of the Anti-Defamation League said, "Unfortunately, this lie, like so many others, has been reported on *60 Minutes* as being viewed as the truth in much of the Arab world. [Baraka's] statement goes to reinforce that lie and I'm sure it will be published out there."

Baraka had been appointed to a two-year term as poet laureate in September 2001 with endorsements from the New Jersey Council for the Humanities and the state's Council on the Arts. In reaction to the outrage over "Somebody Blew Up America," New Jersey Governor James McGreevey requested that Baraka apologize and resign from his post; Baraka refused. New Jersey state law makes no provision for removing a poet laureate from the post. However, McGreevey has sought the power to do so from state legislators, according an October 7, 2002, *New York Times* story.

"We applaud Governor McGreevey's request to have Baraka resign," the *New Jersey News* quotes Goldstein as saying, "What he [Baraka] did is insulting to the residents of New Jersey. He has insulted the memory of everyone who died 9/11 by making the outrageous claim that it was not al-Qaeda but Israel [who attacked the United States]. The best way for him to apologize is to resign."

On October 2, 2002, Baraka issued a statement defending his poem and his right to retain his post as New Jersey Poet Laureate (see www.amiribaraka.com/speech100202.html). "The recent dishonest, consciously distorted and insulting non-interpretation of my poem, 'Somebody Blew Up America' by the Anti-Defamation League," writes Baraka, "is fundamentally an attempt to defame me. And with that, an attempt to repress and stigmatize independent thinkers everywhere. This trashy propaganda is characteristic of right-wing zealots who are interested only in slander and character assassination of those whose views or philosophies differ from or are in contradiction to theirs."

The Poet Laureate of New Jersey, Amiri Baraka (formerly LeRoi Jones), defends his poem "Somebody Blew Up America" at the Bowery Poetry Club on October 17, 2002. Baraka, whose poem concerns the terrorist attack on the World Trade Center, has been called anti-Semitic by the Anti-Defamation League because of references that Israel was aware that the attack was to take place. (© Richard B. Levine)

In the hope of quelling accusations of anti-Semitism, Baraka cites other verses in the poem which discuss the Holocaust and other abuses of Jews: ". . . the ADL disingenuously makes no mention of my probing into the creators of the holocaust, e.g., 'who put the Jews in ovens, / and who helped them do it, / Who said 'America First'/ and Ok'd the yellow stars,' which of course is a reference to America's domestic fascists just before World War @ [*sic*] and the Nazi Holocaust."

"Nor do these ADL purveyors of falsehood mention the poem's listing of some of the Jews across the world, oppressed, imprisoned, murdered by actual Anti-Semitic forces, open or disguised. The poem asks 'Who killed Rosa Luxembourg, Liebnecht/Who murdered the Rosenbergs/ And all the good people iced, tortured, assassinate, [*sic*] vanished.'"

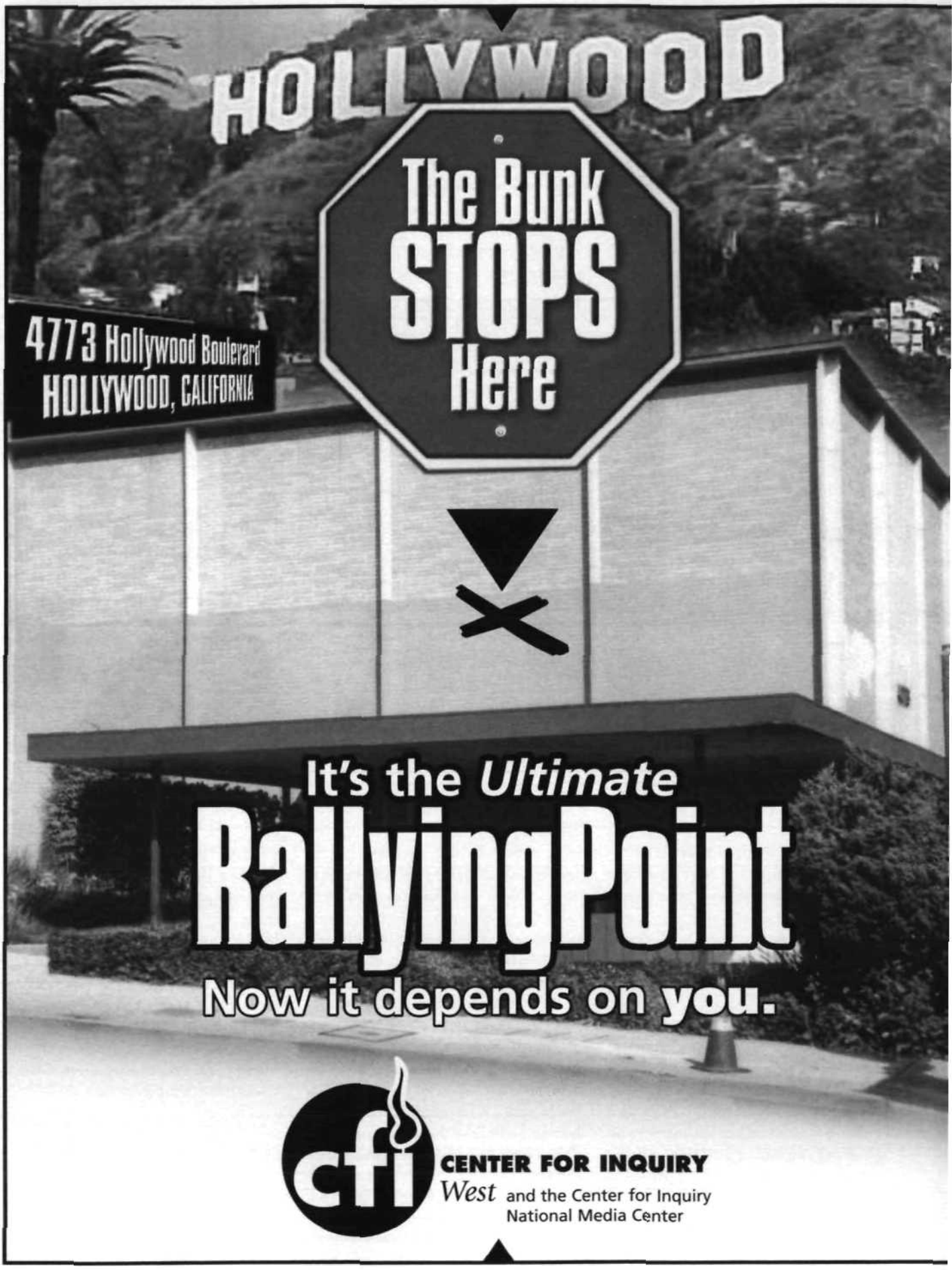
Nevertheless, Baraka then proceeds with an attempt to defend the claim of 4,000 Israeli/Jewish September 11 absentees, citing, of all things, Michael Ruppert's conspiracy video, *The Truth and Lies of 9-11*: "It is the Green Party's Ruppert who makes the most effective case for the 4,000 Israeli workers (Not Jewish Workers!) but Israeli nationals. . . .

"He goes on, and this seems true to me, It is 'Nonsense' to say the Israelis did it. They were warning the U.S. hand over fist.' Ruppert speculates further 1. The U.S. did not listen 2. They needed the attacks, which I leave to time, as Malcolm X s[ai]d, Time will tell.

"But the most stunning revelation is this, again Ruppert, 'We reviewed the list of former tenants of the World Trade Center at the on-line *Wall Street Journal* site. And there's the Web site. It is an alphabetical list of tenants. Scroll to the very bottom and notice the moving date for the office of Zim American-Israeli Shipping to Norfolk Virginia. They were in the World Trade Center. They must have had Mossad (or Shabak-AB) input because they vacated one week before September and they broke their lease. The Israelis didn't pull the attack, but they were smart enough to get their people out of the way. How come our government didn't do the same thing for us.' (Statement & Quote by George DeCarlo, Coordinator of Union County Greens, Co Founder of the NJ Lavender Greens—included in media pkg.)"

In addition to Ruppert's video, Baraka points to sources "everywhere on the Internet" for various allegations. Baraka's research leaves much to be desired.

• If Baraka had gone to www.mfa.gov.il/mfa/go.asp?MFAH0mdb0, he might have wondered who in Mossad forgot to tell Alona Avraham, Leon Lebor, Shay Levinhar, Daniel Lewin,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and Haggai Sheffi—all Israeli and all killed in the attacks—to stay away from the World Trade Center and commercial passenger flights on that day.

• If Baraka had gone to http://usinfo.state.gov/topical/pol/terror/01091417.htm, he might have asked who came up with the figure that 4,000 Israeli citizens worked at the World Trade Center, when an official from the Israeli Consulate in New York estimated that no more than 100 Israelis worked there.

• If Baraka had visited www.hreda.com, he would have found out that the Zim American-Israeli Shipping company's move from New York City to Hampton Roads, Virginia, was announced publicly in a press release issued on April 2, 2001, by the Hampton Roads Economic Development Alliance. This was a business decision and a matter of public knowledge, not a mysterious, surreptitious, last-minute flight from impending danger.

• Recent news reports indicate that terrorist leader Mohammed Atta announced the planned date of the attacks to his roommate-conspirator Ramzi Binalshibh in Hamburg, Germany, on August 29, 2001 (see www.cbsnews.com/stories/2002/10/09/60II/main524947.shtml). If Zim's chief officers planned to bail out from the World Trade Center because of a known terrorist plans, they had knowledge of the attack date nearly five months before the terrorist's inner circle of operatives and confidants even knew. This makes psychic precognition an even more plausible explanation than a tip from Mossad.

I don't believe that Amiri Baraka is the raging anti-Semite that some in Jewish advocacy groups and the media have portrayed him to be in past weeks. His conspiracy paranoia is not focused on Israel or Jews. However, he is certainly a unrepentant sucker for "purveyors of falsehood" and "trashy propaganda." Although "Somebody Blew Up America" is poetry, not journalism, poetic license should not absolve Baraka, who professes to use poetry to make provocative social and political statements. If that's the ethical purpose of his poetry, he has an obligation to motivate people through truth, not lies.

—Kevin Christopher

Kevin Christopher is Public Relations Director for CSICOP.

Brain Site Located that Induces Illusory Out-of-Body Experiences

Apparently the part of the brain that can induce out-of-body experiences has been located.

The finding is the result of diagnostic research in which out-of-body experiences and other illusions about a patient's body were induced when a specific site of her brain was electrically stimulated.

In a report in the September 19 *Nature* (419: 269–270), Olaf Blanke and neurological colleagues with the University Hospitals of Geneva and Lausanne report that they repeatedly induced out-of-body experiences (OBE)—in which a person feels detached from her own body and sees it from above—in a forty-three-year-old female patient.

People who experience OBEs often interpret them as a paranormal experience, but while they are admittedly curious and dramatic, scientists have long realized that they have natural neurophysiological explanations.

The researchers implanted and stimulated electrodes at various sites on the patient's brain in an effort to locate the focus of epileptic seizures she had been suffering from for eleven years. (She had given informed consent for these procedures.) That site was indeed located, in the medial temporal lobe, but in finding it the researchers also discovered, five centimeters away in the brain's right angular gyrus, a site that stimulated OBEs.

Initial stimulation of this site led the patient to report that she was "sinking into the bed" or "falling from a height." Increased current amplitude (3.5 milliamps) led to an OBE. "I see myself lying in bed, from above, but I only see my legs and lower trunk," the patient told the researchers. Two further stimulations induced the same sensation, which included an instantaneous feeling of "lightness" and "floating" about two meters above the bed, close to the ceiling.

Asked to watch her legs, she reported seeing them "becoming shorter." If they were bent, she reported that her legs appeared to be moving quickly toward her face, and she took evasive action.

These and other like observations lead the researchers to conclude that OBEs and complex body-sensory illusions can be artificially induced by electrical stimulation of the cortex. "The association of these phenomena and their anatomical selectivity suggest that they have a common origin in body-related processing, an idea that is supported by the restrictions of these visual experiences to the patient's own body."

The neurological mechanisms that cause OBEs aren't fully understood, the researchers say. But the facts that that sensations of levitation and lightness accompanied the OBEs in their patient and also that the core region of the human vestibular cortex is situated close to the angular gyrus may be significant.

"It is possible that the experience of dissociation of self from the body is a result of failure to integrate complex somatosensory and vestibular information," they conclude.

—Kendrick Frazier □

Amityville: The Horror of It All

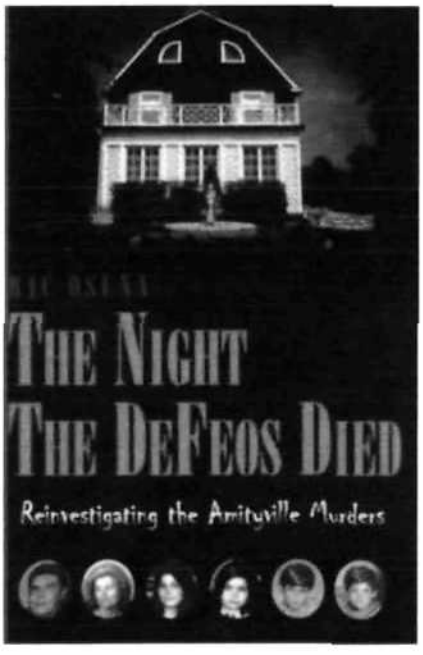
The bestselling book *The Amityville Horror: A True Story* was followed by a movie of the same title and a sequel, *Amityville II: The Possession.* Although the original event proved to be a hoax, that fact does not seem well known to the general public. [For more on the Amityville story, see "The ABC-ville Horror," p. 53 of this issue—Eds.] Now a new book sheds new light on the sordid affair and reviews the multiple-murder case that preceded it. Written by Ric Osuna, it is titled *The Night the DeFeos Died: Reinvestigating the Amityville Murders.*

The saga began on November 13, 1974, with the murders of Ronald DeFeo Sr., his wife Louise, and their two sons and two daughters. The six were shot while they slept in their home in Amityville, New York, a community on Long Island. Subsequently the sole remaining family member—Ronald Jr., nicknamed "Butch"—confessed to the slaughter and was sentenced to twenty-five years to life. Just two weeks after his sentencing late the following year, George and Kathy Lutz and their three children moved into the tragic home where—allegedly—a new round of horrors began.

The six-bedroom Dutch Colonial house was to be the Lutzes' residence for only twenty-eight days. They claimed they were driven out by sinister forces that ripped open a heavy door, leaving it hanging from one hinge; threw open windows, bending their locks; caused green slime to ooze from a ceiling; peered into the house at night with red eyes and left cloven-hooved tracks in the snow outside; infested a room in mid-winter with hundreds of houseflies; and produced myriad other supposedly paranormal phenomena, including inflicting a priest with inexplicable, painful blisters on his hands.

Local New York television's Channel 5 "investigated" the alleged haunting by bringing in alleged psychics together with "demonologist" Ed Warren and his wife Lorraine, a professed "clairvoyant." The group held a series of séances in the house. One psychic claimed to be ill and to "feel personally threatened" by shadowy forces. Lorraine Warren pronounced that there was a negative entity "right from the bowels of the earth." A further séance was unproductive but psychics agreed a "demonic spirit" possessed the house and recommended exorcism (Nickell 1995).

Although the original event proved to be a hoax, that fact does not seem well known to the general public.



In September 1977 *The Amityville Horror: A True Story* appeared. Written by Jay Anson, a professional writer commissioned by Prentice-Hall to tell the Lutzes'

Joe Nickell is CSICOP's Senior Research Fellow and author of numerous investigative books, and a column in the Skeptical Briefs.

story, it became a runaway best seller. Anson asserted: "There is simply too much independent corroboration of their narrative to support the speculation that they either imagined or fabricated these events," although he conceded that the strange occurrences had ceased after the Lutzes moved out.

Indeed, a man who later lived there for eight months said he had experienced nothing more horrible than a stream of gawkers who tramped onto the property. Similarly the couple who purchased the house after it was given up by the Lutzes, James and Barbara Cromarty, poured ice water on the hellish tale. They confirmed the suspicions of various investigators that it was a bogus admixture of phenomena: part traditional haunting, part poltergeist disturbance, and part demonic possession, including elements that seemed to have been lifted from the movie *The Exorcist*.

Researchers Rick Moran and Peter Jordan (1978) discovered that the police had not been called to the house and that there had been no snowfall when the Lutzes claimed to have discovered cloven hoofprints in the snow. Other claims were similarly disproved (Kaplan and Kaplan 1995).

I talked with Barbara Cromarty on three occasions, including when I visited Amityville as a consultant to the *In Search Of* television series. She told me not only that her family had experienced no supernatural occurrences in the house, but that she had evidence the whole affair was a hoax. Subsequently I recommended to a producer of the then-forthcoming TV series *That's Incredible*, who had called for my advice about filming inside the house, that they have Mrs. Cromarty point out various discrepancies for close-up viewing. For example, recalling the extensive damage to doors and windows detailed by the Lutzes, she noted that the old hardware—hinges, locks, doorknob, etc.—were still in place. Upon close inspection, one could see that there were no disturbances in the paint and varnish (Nickell 1995).

In time, Ronald DeFeo's attorney, William Weber, told how the Lutzes had come to him after leaving the house, and he had told them their "experiences" could be useful to him in preparing a book. "We created this horror story over many bottles of wine that George Lutz was drinking," Weber told the Associated Press. "We were creating something the public wanted to hear about." Weber later filed a two-million-dollar lawsuit against the couple, charging them with reneging on their book deal. The Cromartys also sued the Lutzes, Anson, and the publishers, maintaining that the fraudulent haunting claims had resulted in sightseers destroying any privacy they might have had. During the trials the Lutzes admitted that virtually everything in *The Amityville Horror* was pure fiction (Nickell 1995; Kaplan and Kaplan 1995).

Barbara Cromarty told me not only that her family had experienced no supernatural occurrences in the house, but that she had evidence the whole affair was a hoax.

Now Ric Osuna's *The Night the DeFeos Died* adds to the evidence. Ronald DeFeo's wife Geraldine allegedly confirms much of Weber's account. To her, it was clear that the hoax had been planned for some time. Weber had intended to use the haunting claims to help obtain a new trial for his client (Osuna 2002, 282–286).

As to George Lutz—now divorced from his wife and criticized by his former stepsons—Osuna states that "George informed me that setting the record straight was not as important as making money off fictional sequels." Osuna details numerous contradictions in the story that Lutz continues to offer versions of (286–289).

For his part, Osuna has his own story to tell. He buys Ronald "Butch" DeFeo's current story about the murders, assuring his readers that it "is true and has never been made public" (18, 22). DeFeo now alleges that his sister Dawn urged him to kill the entire family and that she and two of Butch's friends had participated in the crimes.

In fact, Butch maintains that Dawn began the carnage by shooting their domineering father with the .35-caliber Marlin rifle. Butch then shot his mother, whom he felt would have turned him in for the crime, but claims he never intended to kill his siblings. He left the house to look for one of his friends who had left the scene and, when he returned to find that Dawn had murdered her sister and other two brothers, he was enraged. He fought with her for the gun and sent her flying into a bedpost where she was knocked out. He then shot her.

Osuna tries to make this admittedly "incredible" tale believable by explaining away contradictory evidence. He accepts DeFeo's claim that he altered the crime scene and asserts that the authorities engaged in abuses and distortions of evidence to support their theory of the crimes. Even so, Osuna concedes that "Butch had offered several different, if ludicrous, versions of what had occurred" (33), and that he might again change his story. But he asserts that "Too much independent corroboration exists to believe it was just another one of his lies" (370).

I remain unconvinced. Butch DeFeo has forfeited his right to be believed, and his current tale is full of implausibilities and contradictions. Osuna appears to me to simply have become yet another of his victims.

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Causes and Correlations

One of the most common fallacies committed by believers in the paranormal is what in philosophy is known by the Latin name of *post hoc, ergo propter hoc*, which loosely translates to "after this, therefore because of this." Surely you have heard some version of it: "I dreamed of my brother the other night, and the following morning he called me, though he rarely does." The implication here is that there is some causal connection between the dream and the phone call, that one happened because of the other. We all know what is wrong with this argument: a correlation between two events does not constitute good enough evidence of a causal connection between them. In the case of the dream as precognition, we probably dream of our relatives often enough, and most often the dream is not followed by their call; yet, because of an innate tendency of the human brain to remember hits and forget misses, we pay attention to the exceptions and charge them with special meaning.

But the good skeptic could go further and ask herself what exactly we mean by causation to begin with. If a correlation is not the hallmark of a causal relationship, what is? The modern study of causation started with the Italian physicist Galileo Galilei, who viewed causes as a set of necessary and sufficient conditions for a given effect. According to Galileo, the dream can be considered a cause of the call only if every time the subject dreams of his brother, the following morning the brother actually does call. The problem with this idea is that it is too restrictive: many phenomena have multiple causes, a subset of which may be sufficient to generate the effect. The brother could call for other reasons than the dream, notwithstanding a true causal connection between dreaming and calling. Or, the dream may be causing the brother to have the impulse to call, but he can't do it because he is at a vacation spot where there are no phones in sight (as hard as this may seem to believe).

Scottish skeptic philosopher David Hume made the next important contribution to our understanding of causality, one that many philosophers (and a few scientists) are still grappling with. Hume argued that we never actually have any evidence that causal connections are real, we only have perceptions of the likely association between what we call a cause and an effect. Here Hume was being a good empiricist, something that a skeptic

Introducing a New Column

"Thinking About Science" is a new regular SKEPTICAL INQUIRER column starting in this issue. The series of short columns will focus on issues of scientific methodology in conducting research, both in skepticism and more generally in science. The goal is to share with SI readers the conceptual difficulties of doing genuinely good research and testing hypotheses. Some, like this first one, will deal with conceptual issues; others will be tied to specific examples of research in skepticism or science to illustrate what works and what doesn't. Author **Massimo Pigliucci** is an associate professor in the Departments of Botany and Ecology & Evolutionary Biology at the University of Tennessee at Knoxville and author of the new book *Denying Evolution: Creationism, Scientism, and the Nature of Science* (Sinauer 2002). His earlier SKEPTICAL INQUIRER articles include "Hypothesis Testing and the Nature of Skeptical Investigations" (November/December 2002), "Design Yes, Intelligent No" (September/October 2001), and "Where Do We Come From? A Humbling Look at the Biology of Life's Origins" (September/October 1999). His Web site is www.rationallyspeaking.org.

ought to appreciate. For him, talk of "causes" sounded as strange as talking of action at a distance, which in pre-Newtonian times was an exercise for mystics, not scientists. So Hume decided to settle on a very pragmatic concept of causality. He suggested that we are justified in talking about causes and effects if three conditions hold: 1) the first event (say, the dream) precedes the second one (say, your brother's call); 2) the two events are contiguous in time, i.e., your brother called the morning after the dream, not a month or a year later; 3) there is a constant conjunction between the two events, i.e., every time you dream of your brother, he will call. As the reader will have noticed, however, the latter clause is very similar to Galileo's idea of necessary and sufficient condition, and will not actually help the scientist in real situations.

John Stuart Mill, well known as a utilitarian, proposed a concept of causation that is at the basis of much modern experimental science and, hence, of skeptical investigations. Mill argued that causality simply cannot be demonstrated without experimentation. Essentially, Mill said that in order to establish a causal connection between two phenomena, we have to be able to do experiments that allow us to manipulate the conditions so that only one factor at a time is allowed to change. A series of these experiments will eventually pinpoint the cause(s) of certain effects.

While Mill's idea has been of fundamental importance for modern science, the problem with it is that it imposes on the investigators logistic requirements that are often too restrictive. What if it is not possible to control all variables but one during an inquiry? Carefully controlled manipulative experiments are possible only in certain fields and under very taxing conditions. Should we then give up the concept of causality for the much larger number of instances in which such manipulations are not possible, unethical, or simply too expensive? That would be problematic because, for example, we could not conclude that smoking causes cancer. It is simply not possible to do the right experiment, especially with human beings: there are too many variables, not to mention deep ethical issues.

What then? One of the most modern conceptions of causality is the so-called probabilistic one. According to probabilistic causality we can reasonably infer that, say, cancer is caused by smoking if the probability of getting cancer is measurably higher when the subjects smoke than when they don't. Other factors here are taken into consideration statistically, not necessarily by experimental manipulation. That is, one carries out the investigation taking care of sampling individuals with different socio-economic backgrounds, diets, exercise habits, and genetic constitution. If, when these other variables are kept in check statistically, we still detect an increase in the likelihood of getting cancer in the smokers compared to the nonsmokers, we are justified in tentatively accepting a causal connection.

Notice, however, that while the probabilistic account of causality is indeed very powerful in practice, conceptually it brings us back toward Hume: the only reason we are talking about causality is because we perceive a series of regularities, not because we know that actual causes are at play. So, in science as in skeptical investigations, we might have to admit that the most we can get is a certain probability of being right. Definitive truth is a chimera that does not belong to science after all.

Further Reading

David Hume (1739–1740). *A Treatise of Human Nature.* □

- **ASKE - The Association for Skeptical Enquiry**
- **ECSO - European Council of Special Organizations**
- **CSICOP - The Committee for the Scientific Investigation of Claims of the Paranormal**

11th European Skeptics Congress

September 5–7, 2003 • London, England

This congress will be held in the center of London, an exciting meeting place for skeptics from the world over to talk about, listen to, discuss, and debate current controversies.

The congress will consist of:

- Keynote addresses by invited speakers
- One or more debates on contentious issues
- Thirty-minute talks and discussion by participants
- "Make your point" sessions: brief presentations, following which the audience will discuss and challenge the issue raised by each presenter.

There will be a sequence of symposia devoted to different areas of interest to skeptics, although one symposium may be a miscellany of topics. The others are Science, Health and Medicine; Parapsychology; Anomalistic Psychology; and "Scientists on the Defensive," the last-mentioned being in the form of a debate.

For further details visit the ASKE Web site (www.aske.org.uk) or contact:
The 11th European Skeptics Congress, ASKE, P.O. Box 5994, Ripley, DE5 3X, UK (e-mail: general@aske.org.uk).

Don't Try This at Home

Some of the most astonishing feats ever accomplished (or supposedly accomplished) by men are the incredible demonstrations of Indian fakirs and gurus. The word *fakir* often brings to mind the image of a thin, old Indian man, lying on a bed of nails, walking on hot coals or accomplishing any other kind of apparently impossible demonstration. It is said that years of practice and meditation are needed in order to master these peculiar abilities and that they are precluded from mere mortals.

Since these are just the kind of claims that provoke the curiosity of people like myself and my friend Luigi Garlaschelli, a chemist at the University of Pavia and a noted expert on religiously related paranormal claims, a few years ago we decided that we were going to test some of the fakir demonstrations.

The episode that sparked our curiosity was a meeting with famed Indian skeptic Basava Premanand. Premanand, who was born in Calcutta in 1930, is an Indian magician and leader of the Indian Skeptics; he has devoted his abilities and full time work to the investigation of supernatural claims in India and the subsequent revelation of the tricks and frauds he found. CICAP (the Italian Committee for the Investigation of Claims of the Paranormal) has twice invited Premanand to Italy in order to present his work to the Italian public. Luigi and I spent hours with him discussing Indian fakirs and gurus; he is a very likeable fellow, kind and helpful in all of his descriptions and has a good sense of humor, especially when relating some of the most bizarre episodes he happened to be involved in.

Basava Premanand has devoted his abilities and full time work to the investigation of supernatural claims in India and the subsequent revelation of the tricks and frauds he found.

Luigi Garlaschelli holds a flaming torch for a demonstration.

"Have you ever seen a real miracle?" we asked him.

His response: "I've seen a lot, but unfortunately not one of them was authentic, they were all accomplished by trickery."

"What kind of trickery?" we asked.

"You see, there are four different ways to obtain a 'miracle': by sleight of hand, by the use of chemical compounds, by mechanical means, and, finally, using some little-known facts about the human body."

Premanand then went on to describe all of the tricks he found and that we subsequently put in practice.

We asked him how he became interested in such phenomena. "When I was a kid," Premanand told us, "I believed in miracles. I was fascinated by stories of magic powers and yogis. Being a Hindu boy, I too wanted to possess these powers and so I set forth

Massimo Polidoro is an investigator of the paranormal, author, lecturer, and co-founder and head of CICAP, the Italian skeptics group.

looking for a guru willing to teach me. My search took me to various gurus: among the first was Swami Sivananda Maharaj, then the only living disciple of Ramakrishna Parmahansa, the guru that claimed he had seen God and had shown It to his disciples. I went to the Swami and asked him to show me God, exactly like Parmahansa had shown It to him; he confessed he hadn't really seen It. In those days, furthermore, I observed a recurring fact: while yogis kept on explaining to others how to obtain perfect health, they themselves had various kinds of health problems: rheumatisms, liver deficits, asthma, diabetes, cancer. . . . I asked one of the gurus about this and he said: 'I could instantly be healthy if I want to, but I am voluntarily paying for the sins I committed in a previous life.' It was quite clear even then that my attitude was not welcome and, usually, when I started questioning what I saw I was inevitably asked to leave the temple."

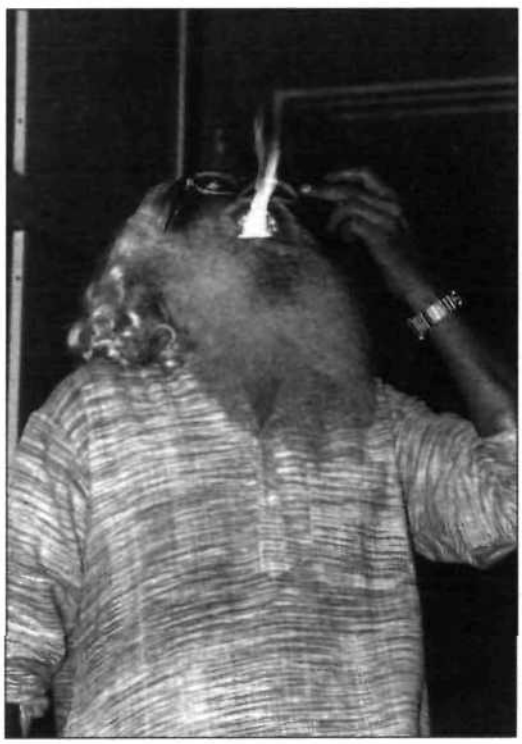
While yogis kept explaining to others how to obtain perfect health, they themselves had various kinds of health problems.

Premanand, who is also the author of thirty books in malayalam (the language of his country) and five in English, told us of his ultimate goal.

"My desire is to build a research center in India where all the miracles and psychic phenomena will be exhibited and explained with a library on religion, magic, science, etc. But this costs money and, unfortunately, I cannot conjure up money from thin air!"

It was right after meeting this very peculiar and inspiring man that we decided to put his suggestions to practical use and see if we could turn ourselves into some sort of Occidental disciples of Premanand.

Here, for your enjoyment, are some very impressive feats that may give the impression that one is a "human salamander," a fireproof man or woman! Premanand taught us these demonstrations and, since we ourselves were able to perform them, we think that anyone, with due care and preparation, could be able to present them. Before going any further, however, you should take note that we strongly discourage any attempt to reproduce the demonstrations described here, unless you are being helped by some expert in the field, and that we cannot be held responsible for anything arising from an improper use of the information contained in these pages. *In other words do not try this at home!* We discuss them *for informational purposes only.*



Famed Indian skeptic Basava Premanand "eats" fire.

Playing with Fire

Any demonstration that involves fire has quite a strong impact on the lay public, since anyone knows from childhood the kind of threat it represents. However, if handled very carefully and if one takes all the necessary precautions, it is possible to demonstrate feats that appear to be more impressive and dangerous than they really are.

It is possible, for example, to light a torch and pass it close to the skin without getting burned. How? Well, first of all you prepare the torch: you need a wooden stick about an inch thick; wrap a rope quite a few times around one end of the stick and then immerse this end in kerosene. Let the excess drip off and then light the rope with a lighter or a match. With kerosene you obtain quite a big flame, with dark smoke, that you can pass under your forearm without burning your skin (though your hair probably will get burned). Always keep the flame in motion and never stop it close to the skin. You can start by moving the flame from your elbow and then finish by passing under your hand and finally away.

Fire-eating

You don't really "eat" fire, but you can put a flame in your mouth without getting burned. You need a torch built as described above and some kerosene. Immerse the torch in kerosene and then light it. Again, let the excess kerosene drip off before you attempt your demonstration. Tilt your head backward, open your mouth and slightly breath out: never breath in! Put the torch in your mouth, without rushing but also without hesitation: instantly close your mouth. You won't feel any pain and the torch will extinguish itself: this happens because without oxygen the flame can't stay alive. Be careful only to use kerosene, never use alcohol, gasoline,

or any kind of solvent: their flames are too hot and can easily burn you.

Camphor Eating

Premanand also showed us how you can keep a piece of flaming camphor in your mouth (the kind used to keep insects away from your clothes) or toss it from one hand to the other without damage. "In 1977," Premanand told us, "a film artist of Kerala published an article challenging me to burn camphor on the hand and wave it before the idol in the temple. He said that his godman, Swami Satyananda Saraswathi, the International President of Vishwa Hindu Parishad, burns camphor on his hand and waves it before the idol of Shri Rama in his temple. This was considered to be a miracle. I told him that this stunt can be done by children of five. And in the end they even eat the fire. If this godman really has supernatural powers let him keep the camphor in his beard, light it, and wave it before the idol without getting his beard singed. The godman did not accept the challenge."

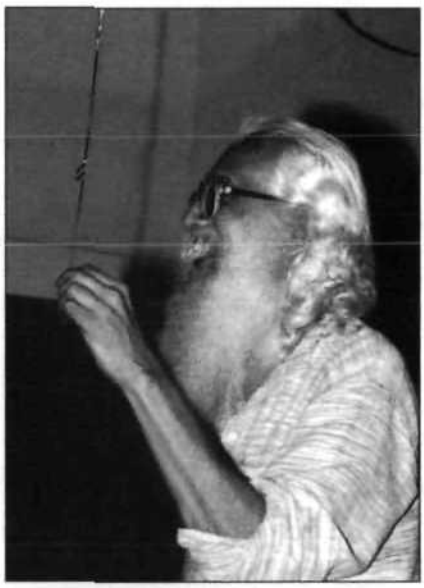
For these demonstrations you need a large camphor cube (pure, not synthetic) and a match box. Hold the camphor cube between the thumb and index finger and light it. You can keep the burning camphor on the palm of your hand as long as it never remains on the same place but is moved about on the palm as you wave your hand. When the palm gets hot transfer the camphor to the other hand and wave it as before. Later, when both the hands have absorbed enough heat and might burn, place the burning camphor on your tongue. When you feel the tongue getting hot, blow out the fire by breathing out, or close your mouth and the fire will get extinguished by itself.

Licking Red-hot Rods

"While talking to the District Education Officers at Delhi," Premanand said, "one of them from Gharwal district told me he had seen an oracle, possessed by the deity, licking a red hot poker until it was cold. He wondered how a person could lick a red-hot iron unless he had supernatural powers."

This time, I didn't need to wait for Premanand to tell us the solution to this mystery. When I was living in Florida to work with James Randi, he once told me a very revealing story: "In my youth, I worked Saturdays at an aluminum foundry in Canada. It was my delight to watch and speak with some of the old-timers there, and one chap used to astonish me by washing his hands, scooping the dross from the surface of some molten metal, then splashing his hands in it! Told by him that I could do another related stunt, I got my nerve together and alone one afternoon in the garage of my home, I heated a soldering 'copper' in a blow-torch flame, and when it was glowing brightly red, I licked it with my bare tongue. As I brought the thing close to my face, I felt the extreme heat of it on my face, to the point where it was almost unbearable. I rushed indoors to examine my tongue in the bathroom mirror. It was intact, and hasn't stopped moving since. There was no trace of any burn, and I was ecstatic. My mother never found out."

You can keep the burning camphor on the palm of your hand as long as it never remains in the same place.



Basava Premanand licks a red-hot poker.

At the end of the lengthy discussions we had with Premanand on the mysteries of the East, which no longer appeared as mysteries, there was one more thing that Basava Premanand told us. "You know, I told you I had one desire: to create a research center in India for the investigation of psychic phenomena. Well, to tell you the truth I also have one other wish."

"And what is it?" we asked.

"It's simple, I'd like to witness a real miracle before dying."

I think that could be a wish that many of us would subscribe to. . . .

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How *Not* to Test Mediums[1]

Critiquing the Afterlife Experiments

Professor Gary Schwartz makes revolutionary claims that he has provided competent scientific evidence for survival of consciousness and—even more extraordinary—that mediums can actually communicate with the dead. He is badly mistaken. The research he presents is flawed, and in numerous ways. Probably no other extended program in psychical research deviates so much from accepted norms of scientific methodology as this one.

RAY HYMAN

Gary Schwartz is professor of psychology, medicine, neurology, psychiatry, and surgery at the University of Arizona. After receiving his Ph.D. in personality psychology from Harvard University, he taught at Harvard and then at Yale University for twenty-eight years as a professor of psychology and psychiatry. He has published more than 400 scientific papers. He came to the University of Arizona in 1988 to do research on, among other things, the relationship between love and health. In 1993 he met Linda Russek and married her soon after. Linda was still grieving over the death of her father. Soon after she met Schwartz, Linda asked him, "Do you think it is possible that my father is still alive?"

That question triggered a research program to answer it and the more general question of survival of consciousness. At first the program was conducted in secret and then became public around 1997. Since 1997, Schwartz has reported a number of studies in which he and his coworkers have observed some talented mediums such as John Edward and George Anderson give readings to sitters in his laboratory. This work has attracted considerable attention because of Schwartz's credentials and position. Even more eye-opening is Schwartz's apparent endorsement of the mediums' claims that they are actually communicating with the dead.

For Schwartz this conclusion follows from the famous principle known as Occam's Razor. Schwartz paraphrases Occam's principle as "All things being equal, the simpler hypothesis is usually the correct one."[2] As Schwartz sees it, "The best experiments [supporting the reality of communicating with the dead] can be explained away, only if one makes a whole series of assumptions. . . ." These assumptions include: 1) that mediums use detectives to gather some of their information; 2) that sitters falsely remember specific facts such as the names of relatives; 3) that the mediums are super guessers; 4) that mediums can interpret subtle cues such as changes in breathing to infer specific details about the sitter and her relatives; and 5) that the mediums use super telepathy to gather facts about the sitter's deceased friends and family. According to Schwartz, such assumptions create unnecessary complexity. "However, if we were to apply Occam's Razor to the total set of data collected over the past hundred years, including the information you have read about in this book, there is a straightforward hypothesis that is elegant in its simplicity. This is the simple hypothesis that consciousness continues after death. This hypothesis accounts for all the data" [p. 254].

Schwartz's new book *The Afterlife Experiments* presents evidence from a series of five reports in which Schwartz and his associates observed mediums give readings to sitters "in stringently monitored experiments." Schwartz does admit that his experiments were not ideal. For example, only the very last in his sequence of studies used a truly double-blind format. Yet he insists that the mediums, although often wrong, consistently came up with specific facts and names about the sitters' departed friends and relatives that the skeptics have been unable to explain away as fraud, cold reading, or lucky guesses. He provides several examples of such instances throughout the book. These examples demonstrate, he believes, that the readings given by his mediums are clearly different from those given by cold readers and less gifted psychics. "If cold readings are easy to spot by anyone familiar with the techniques, the kinds of readings we have been getting," he asserts, "in our laboratory are quite different in character."

Could It Be Cold Reading?

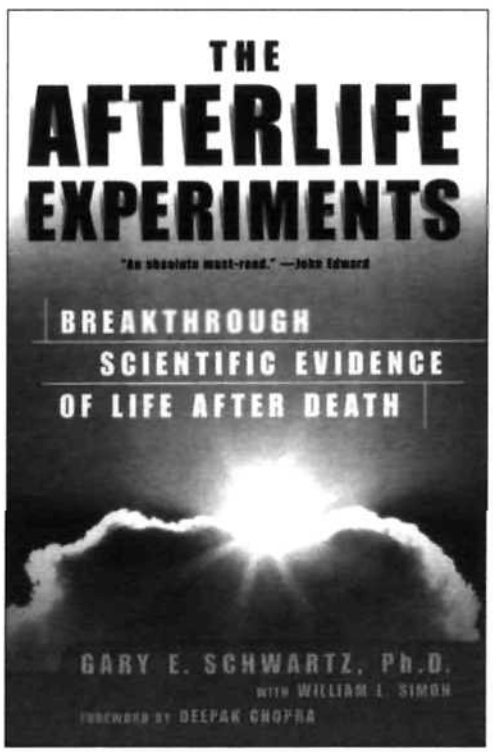
Now it so happens that I have devoted more than half a century to the study of psychic and cold readings. I have been especially concerned with why such readings can seem so concrete and compelling, even to skeptics. As a way to earn extra income, I began reading palms when I was in my teens. At first, I was skeptical. I thought that people believed in palmistry and other divination procedures because they could easily fit very general statements to their particular situation. To establish credibility with my clients, I read books on palmistry and gave readings

Ray Hyman is professor emeritus of psychology at the University of Oregon. His lifelong research interests include examination of alleged psychic readings and the psychology of deception and self-deception. Many of his critiques of parapsychological experiments and related matters were collected in his book The Elusive Quarry *(Prometheus 1989). Address: 5205 Nectar Way, Eugene, OR 97405. E-mail: rayhyman@msn.com.*

according to the accepted interpretations for the lines, shape of the fingers, mounds, and other indicators. I was astonished by the reactions of my clients. My clients consistently praised me for my accuracy even when I told them very specific things about problems with their health and other personal matters. I even would get phone calls from clients telling me that a prediction that I had made for them had come true. Within months of my entry into palm reading, I became a staunch believer in its validity. My conviction was so strong that I convinced my skeptical high school English teacher by giving him readings and arguing with him. I later also convinced the head of the psychology department where I was an undergraduate.

Gary E. Schwartz

When I was a sophomore, majoring in journalism, a well-known mentalist and trusted friend persuaded me to try an experiment in which I would deliberately read a client's hand opposite to what the signs in her hand indicated. I was shocked to discover that this client insisted that this was the most accurate reading she had ever experienced. As a result, I carried out more experiments with the same outcome. It dawned on me that something important was going on. Whatever it was, it had nothing to do with the lines in the hand. I changed my major from journalism to psychology so that I could learn why not only other people, but also I, could be so badly led astray. My subsequent career has focused on the reasons why cold readings can appear to be so compelling and seemingly specific.



Psychologists have uncovered a number of factors that can make an ambiguous reading seem highly specific, unique, and uncannily accurate. And once the observer or client has been struck with the apparent accuracy of the reading, it becomes virtually impossible to dislodge the belief in the uniqueness and specificity of the reading. Research from many areas demonstrates this finding. The principles go under such names as the fallacy of personal validation, subjective validation, confirmation bias, belief perseverance, the illusion of invulnerability, compliance, demand characteristics, false uniqueness effect, foot-in-the-door phenomenon, illusory correlation, integrative agreements, self-reference effect, the principle of individuation, and many, many others. Much of this is facilitated by the illusion of specificity that surrounds language. All language is inherently ambiguous and depends much more than we realize upon the context and nonlinguistic cues to fix its meaning in a given situation.

Again and again, Schwartz argues that the readings given by his star mediums differ greatly from cold readings. He provides samples of readings throughout the book. Although these samples were obviously selected because, in his opinion, they represent mediumship at its best, every one of them strikes me as no different in kind from those of any run-of-the-mill psychic reader and as completely consistent with cold readings. In August 2001, Schwartz assembled a panel of seven experts on cold reading, including me, to instruct him on the topic. We were shown videotapes of Suzane Northrup and John Edward giving readings in his laboratory. Most members of the panel were openly sympathetic to Schwartz's goals and program. Yet we all agreed that what we saw Northrup and Edward doing was no different from what we would expect from any cold reader.

I am sure that Professor Schwartz will strongly disagree with my observation that the readings he presents as strong evidence for his case very much resemble the sorts of readings we would expect from psychic readers in general and cold readers in particular. This disagreement between us, however, relies on subjective assessment. That is why we have widely accepted scientific methods to settle the issue. That is why it is important, especially for the sort of revolutionary claims that Schwartz wants to make, that it be backed up by competent scientific evidence. Throughout his 2002 book *The Afterlife Experiments*, Schwartz implies that he has already provided such evidence.

This, as I will explain, is badly mistaken. The research he presents is flawed. Probably no other extended program in psychical research deviates so much from accepted norms of scientific methodology as this one does.

The Afterlife Experiments: Breakthrough Scientific Evidence of Life After Death. By Gary E. Schwartz, Ph.D. with William L. Simon. Pocket Books, New York, 2002. ISBN 0-7434-3658-X. 374 pp. Hardcover, $25.

Is the Research Fundamentally Flawed?

Although never going so far as to claim his research methodology is ideal, he apparently believes it is adequate to justify his conclusions that his mediums are communicating with the dead. He writes, "Skeptics who claim that this is some kind of fraud the mediums are working on us have nonetheless been unable to point out any error in our experimental technique to account for the results" (p. xxii). Later he asserts, "The data appear to be real. If there is a fundamental flaw in the totality of the research presented in these pages, the flaw has managed to escape the many experienced scientists who have carefully examined the work to date" (p. 13).

These statements perplex me greatly. I have carefully itemized not one but several "fundamental" flaws in Schwartz's afterlife experiments. I confronted Schwartz with this listing of flaws at two public meetings where we shared the same platform. I also brought them up again at the panel on cold reading that he convened. The other members of the panel also pointed to flaws. And Wiseman and O'Keeffe[3] pointed to serious problems with Schwartz's first two published studies in the areas of judging bias, control group biases, and sensory leakage. I would have to make this article almost as long as Schwartz's book to explain adequately each flaw. Because any one of these flaws by itself would suffice to invalidate his experiments as acceptable evidence, I will discuss only a few of these here. First, I will list here the major types of flaws in the experiments described in his first four reports (I will deal with the fifth report separately below):

1. Inappropriate control comparisons
2. Inadequate precautions against fraud and sensory leakage
3. Reliance on non-standardized, untested dependent variables
4. Failure to use double-blind procedures
5. Inadequate "blinding" even in what he calls "single blind" experiments
6. Failure to independently check on facts the sitters endorsed as true
7. Use of plausibility arguments to substitute for actual controls

The preceding list refers to defects in the conduct of the experiments and in the gathering of the data. Other very serious problems appear in the way Schwartz interprets and presents the results of his research. These include:

8. The confusion of exploratory with confirmatory findings
9. The calculation of conditional probabilities that are inappropriate and grossly misleading
10. Creating non-falsifiable outcomes by reinterpreting failures as successes
11. Inflating significance levels by failing to adjust for multiple testing and by treating unplanned comparisons as if they were planned.

Other problems involve failure to use adequate randomization procedures, using only sitters who are predisposed to the survival hypothesis, inappropriate statistical tests, and other common defects that plague new research programs. Even if the research program were not compromised by these defects, the claims being made would require replication by independent investigators. Perhaps Schwartz's most serious misconception is seen in his attempt to shift the burden of proof from himself to the skeptics.

The worst mistake made by Schwartz and his colleagues was to publish the results they have obtained so far. Instead, they should have first tried to gather evidence for their hypothesis that would meet generally accepted scientific criteria. By submitting their very inadequate studies to public scrutiny and by demanding that skeptics "explain away" their defective data, they have lost credibility. In addition, the journals that did accept these studies for publication and Schwartz's panel of Friendly Devil's Advocates have also suffered greatly in credibility.

The worst mistake made by Schwartz and his colleagues was to publish the results they have obtained so far. Instead, they should have first tried to gather evidence for their hypothesis that would meet generally accepted scientific criteria.

Schwartz's Inadequate and Inappropriate Response to Criticisms

Schwartz's responses to criticisms such as those made by Wiseman and O'Keeffe obscure rather than clarify matters.[4] For example, regarding his failure to provide safeguards against sensory leakage, he complains that Wiseman and O'Keeffe "curiously did not mention that we were fully cognizant of such issues and were actively researching them at the time the Schwartz et al. paper was published." The fact that the researchers were aware that they had not provided adequate safeguards against sensory leakage does not in any way make their data more acceptable. Indeed, if they were aware of how to properly control for this flaw, it is even more inexcusable that they failed to do so. Why did they publish data they knew to be compromised and try to pass them off as legitimate science?

Indeed, Schwartz actually states that he deliberately allowed for some sensory leakage to see if "the remaining subtle cues" could explain the subsequent accuracy of the mediums' statements. He also states that he wanted to begin with "a semi-naturalistic design . . . to develop a professional relationship with the mediums. . . ." If, in fact, this was his rationale for using an inadequate design, then he should have treated the study as a preliminary probe to see if the mediums could work under laboratory conditions. Such a preliminary or pilot study, however, should then be followed up with a formal, properly conducted experiment. Knowing how to properly control for sensory leakage in no way licenses the publishing of flawed data to support a hypothesis.

In defending himself against the charge of sensory leakage, Schwartz uses another tactic that violates acceptable scientific conduct. He tries to shift the burden of proof onto the

skeptic: "Skeptics who speculate that 'cold reading' can achieve similar results have a responsibility to show that identical findings can be obtained *under the conditions used in the Schwartz et al. research* (e.g., the single-blind sitter-silent condition that effectively rules out pre-experimental information and verbal feedback). We welcome such experiments."

This control group in no way provides a proper comparison or baseline for the "accuracy ratings" of the mediums by the sitters. The control group was given a task that differed in very important ways from that of the mediums.

Sorry, Professor Schwartz. The skeptics and the scientific community have no responsibility to show anything until you provide them with data collected according to well-established and acceptable standards. The responsibility is yours to first provide us with evidence for your hypothesis of survival of consciousness that is gathered according to the appropriate scientific standards which include controlling for sensory leakage; devising dependent variables that are relevant, reliable, and valid; and using control comparisons that are meaningful.

Schwartz's rejoinders to Wiseman and O'Keeffe's other two topics of criticism are even more disturbing. His response to the charge of possible judging bias is that, "The purpose of the original Schwartz et al. experiments (2001) was *not* to rule out possible rater bias, but to minimize it." He again tries to shift the burden of proof to the skeptic, by arguing that it is implausible to speculate that his sitters would exhibit rater bias on such things as names, relationships, and the like. Indeed, it is highly plausible to me that some sitters might acquiesce to statements that are demonstrably false. However, science exists as a way to avoid arguments over plausibility. Minimizing rater bias is not the same as precluding it. If he wants to claim scientific acceptance for his evidence then he has to gather the data under conditions that eliminate or adequately correct for such bias. Even worse is his rejoinder to the claim that he used an inappropriate control group. "The purpose of the original...experiments was *not* to include an ideal control group, but rather to address, and possibly rule out (or in) one possible explanation for the data—i.e., simple guessing."

This last statement is both confusing and wrong. I suspect that Schwartz means by "an ideal control group" one made up of individuals who are the same age and have the same sort of experience as his mediums. Since his actual control group consisted of undergraduate students who had no prior experience as mediums, the group was obviously not ideal in this sense. However, what Wiseman and O'Keeffe are criticizing is that this control group in no way provides a proper comparison or baseline for the "accuracy ratings" of the mediums by the sitters. This is for the simple reason that the control group was given a task that differed in very important ways from that of the mediums. There is no way that the results from this control group could provide a comparison or baseline for simple guessing.

The mediums are free to make statements about possible contacts, names, relations, causes of death, and other matters. In the earlier experiments they were given "yes" and "no" replies from the sitters and in later experiments they typically began a segment without feedback and then went through an additional segment with feedback. The sitters were free to find matches within the output of the medium to fit their particular circumstances. Later the sitter was given a transcript of the entire reading and rated each statement for how accurately it applied to her situation. The statements that got the highest rating were counted as hits. The proportion of such hits varied from approximately 73 to 90 percent in the earlier experiments and somewhat lower in the later ones.

In contrast, the control subjects were given a series of questions based on a reading given to their first sitter. Statements from the readings were converted into questions that could be answered in such a way that the answer could be scored correct or incorrect. For example, if the medium had correctly guessed the cause of the sitter's mother's death, a question given to the controls might be, "What was the cause of her mother's death?" Schwartz and his colleagues report that the average percentage of correct answers by the controls was 36 percent. Because the "accuracy" of the mediums was much higher, the researchers conclude that the mediums had access to true information that cannot be explained away as guessing.

Wiseman and O'Keeffe correctly point out that this is an inappropriate comparison. Although Schwartz claims that, if anything, the controls had an advantage over the mediums, the use of the results for the control groups as a baseline for the mediums is completely meaningless. Wiseman and O'Keeffe provide several reasons why. In addition to the reasons they give, a more fundamental one is that the score for the controls does not involve subjective ratings by the sitters *while the accuracy scores for the mediums depend entirely upon the judgment of these sitters.* We have no idea how well the mediums could do if given the same task as the controls. I strongly suspect they could not perform any better.

The accuracy score for the medium is completely dependent on the subjective decisions of the sitter. The very first example of a reading provided in this book begins as follows:

> The first thing being shown to me is a male figure that I would say as being above, that would be to me some type of father image. . . . Showing me the month of May. . . .They're telling me to talk about the Big H–um, the H connection. To me this an H with an N sound. So what they are talking about is Henna, Henry, but there's an HN connection. (p. xix)

The sitter identified this description as applying to her late husband, Henry. His name was Henry, he died in the month of May and was "affectionately referred to as the 'gentle giant.'" The sitter was able to identify other statements by the medium as applying to her deceased spouse.

Note, however, the huge degree of latitude for the sitter to fit such statements to her personal situation. The phrase "some type of father image" can refer to her husband because he was also the father to her children. However, it could also refer to her own father, her grandfather, someone else's father, or any male with children. It could easily refer to someone without children such as a priest or father-like individual–including Santa Claus. It would have been just as good a match if her husband had been born in May, had married in May, had been diagnosed with a life-threatening illness in May, or considered May as his favorite month. The "HN" connection would fit just as well if the sitter's name were Henna or her husband had a dog named Hank.

Schwartz concludes that, "No other person in the sitter's family fit the cluster of facts 'father image, Big H, Henry, month of May' except her late husband, Henry." Of course not! If that person, or any other, also found a match for their personal life, it too would be unique. When I put myself in the shoes of a possible sitter and try to fit the reading to my situation, I can find a good fit to my father, who was physically large, whose last name was Hyman, and for whom, like any human on this planet, experienced one or more notable events in the month of May. Other things in the reading also can easily be fitted to my father. Neither the original sitter nor anyone else would fit this cluster of facts! Schwartz makes much of the fact that the cluster of facts that a sitter extracts from a reading tend to be unique for that sitter. He even calculates the conditional probabilities of such a cluster occurring just by chance. Naturally, these conditional probabilities are extremely low—often with odds of over a trillion-to-one against chance.

The "accuracy" score for the medium, as calculated by the experimenters, depends critically on the sitter's ratings. This allows subjective validation[5] and uncontrolled rater biases to enter the picture on the side of the mediums. The sitters were deliberately selected because they were already disposed towards the survival hypothesis (that consciousness survives death). Given the statement "some type of father image," the sitter easily fit this to her late husband who was the father of her children. For her, this would get the highest accuracy rating. A more skeptical sitter, realizing the ambiguity in the statement, might give it a lower rating. Given the statement "showing me the month of May," the committed sitter would rate it accurate because her husband actually died in the month of May. A less committed sitter might rate it as less accurate because she realizes that this statement could apply to any significant event that happened to her husband, herself, or her family in May. From the example above, if I were a committed sitter receiving the same reading, I could see myself giving it a score of five out of five (or 100% accuracy) because my father (obviously a type of father image), experienced one or more significant events in May (*showing me the month of May*), was large and overweight and named Hyman (*about the Big H–um, the H connection...an H with an N sound*).

Compare this with the task confronting the control subjects. They would be given a series of questions based on this reading which might go as follows:

1. What was the relation of the deceased to the sitter?
2. What was the name of the sitter's husband?
3. In what month did he die?
4. How was he described by his friends?

The control students would have to come up with the answers *husband, Henry, May,* and *big* to get a perfect score. The likelihood of anyone, including the mediums, getting all these correct, or even a high percentage of them correct, is very small indeed. It is obvious that this a completely different task from the one performed by the mediums. A strikingly obvious difference is that the sitter's judgments and biases are completely removed from the task given the controls. Indeed, it is just these potential biases and subjective judgments being made by the sitters that obviously cries out for controlling.

Conditional Probabilities

One way that Schwartz assesses the likelihood that his mediums are obtaining their "hits" just by chance guessing is to calculate conditional probabilities of getting a certain pattern of statements that would match the sitter's situation. In the excerpt from the reading I have been using as an example, he might estimate the probability of getting the gender of the sitter's husband as 1/2; the probability of indicating that he was dead as 1/2; the probability of correctly guessing that deceased person was the sitter's husband as, perhaps, 1/6; the probability of guessing the month of death as 1/12; the probability of getting the correct name as 1/15; and the probability that of knowing that he was described by friends as "big" as 1/20 (of course, the particular probabilities being made in most of these cases have to be based on assumptions and guesswork, but Schwartz claims that he errs on the conservative side in making such estimates). The combined probability of correctly getting this particular pattern of matches just by chance would simply be the product of these separate probabilities. In my example, the probability of achieving this particular pattern of matches would be less than 1 out of 86,000.

Such a low probability would seem to clearly rule out chance as an explanation for the results. Most of Schwartz's actual calculations typically lead to probabilities of less than one out of a million or even millions. In one case he calculated the probability that the results could have been obtained by guessing as 1 in 2.6 trillion! If these calculations were appropriate they certainly would clearly rule out guessing as an explanation for the mediums' apparent successes.

Probability, however, is a very slippery concept. Even experts have gone badly astray in trying to apply it to situations in the real world. Some of the reasons why Schwartz's conditional probability calculations are inappropriate and misleading in this context involve highly technical considerations concerning conditional probabilities, independence, sample spaces, and the like. However, you can realize something must be wrong here when you consider that these same types of calculations also provide very low probabilities for any set of matches that any person—the sitter or someone else—finds in a given reading. For example, the pattern of matches that I find in the sample reading with respect to my late father yields

a probability of guessing that is so low as to also rule out chance. And this will be true for any pattern of matches that anyone can find in the same reading. One problem is that Schwartz's calculations do not take into account the enormous variety of possible combinations that could be extracted from a single reading. Each one would be unique to the person for whom that pattern makes sense.

Ironically, such conditional probability calculations could be justified (with some important reservations) for the task given to the control students. Each question they were posed has an explicit answer. If we can make reasonable assumptions about the probability of getting each answer just by chance, and if we can assume that the answers to each question are independent of each other, then we might legitimately try to estimate the probability of getting all the answers correct by multiplying together the probabilities of correct answers for all the questions. Notice that we can do this only because we defined the *total set of possibilities* and have not selected, after the fact, just those questions that were answered correctly.

Gary Schwartz examines data from his experiments. Frames from *Dateline NBC*.

One of the tested mediums, left, tries to get information from the sitter.

John Edward is tested by Gary Schwartz.

Reliance on Uncorroborated Sitter Ratings

This discussion of the reasons why the control comparison and the calculation of conditional probabilities are inappropriate points to one of the most serious weaknesses in this research program. The "accuracy" ratings of the mediums depend entirely upon the judgments of the individual sitters. Each sitter is solely responsible for validating the reading given to him or her. Each sitter is carefully chosen to be someone who is favorably disposed to the survival hypothesis and who wants the medium to be able to communicate with their departed family and friends. Schwartz admits that the "accuracy" ratings from sitters *who are not so favorably disposed are much lower.* Although this is consistent with rater bias, Schwartz has other explanations. He also believes that just as some mediums are "white crows," there are also sitters who are "white crows"—that is, some sitters are prone to get especially good results. In other words, some sitters are more prone to give higher ratings of accuracy than do other sitters.

One simple explanation, consistent with Occam's Razor, is that some sitters are more susceptible to response biases. Schwartz, I am sure, will strongly disagree. This, again, highlights the need for properly conducted research that precludes or adequately corrects for such possible biases. This is why a properly conducted research program requires carefully standardized, reliable, and valid dependent variables; truly double-blind procedures; appropriate control comparisons; and proper controls for sensory leakage. All of these requirements, as I have explained, are lacking in the afterlife experiments.

Schwartz has tried to counter some of these criticisms by pointing to the fact that much of the information provided by the medium consists of factual material that can be independently checked (for example, specific names, relationships, careers, gender, etc.). Yet he has never bothered to make an independent check on these "facts." He simply accepts the sitters' statements. He argues that it is completely unreasonable to believe that one of his trusted sitters would say "yes" to a fact that was untrue. This, of course, is using a plausibility argument in the place of a control that should have been incorporated into the research. Perhaps it is unlikely that a sitter would acquiesce to a factual statement that she or he knows to be untrue. However, his own excerpts from readings given in his book provide one or more examples. In one case, one of his best sitters keeps acquiescing to John Edward's mistaken belief that her husband is dead, even though he is alive and sitting in the next room. As he does over and over again when he encounters what looks like a miss, Schwartz manages to find a convenient explanation to this peculiar situation. He suggests that this could be case of precognition because the sitter's husband was killed in an accident some months after the reading.

The Laurie Campbell "White Crow" Readings

The book begins with a quotation from William James. "In order to disprove the law that all crows are black, it is enough to find one white crow." James was interested in the possibility of psychic phenomena. He believed that it was sufficient to find one truly indisputable example of a psychic occurrence to demonstrate that violations of natural law were possible. Schwartz claims he has uncovered several white crows. The performance of his mediums, especially Laurie Campbell and John Edward, earn them the accolade, in his judgment, of "white crow" mediums. He has also found at least one "white crow" sitter in one of his participants, GD.

GD is a psychiatric social worker who lost his partner,

Michael, to AIDS. GD discovered he had mediumistic powers and believed he was in contact with his deceased partner. He took part as one of three sitters in an experiment with the medium Laurie Campbell. The researchers reported that, "Statistically significant evidence for anomalous information retrieval was found for each of the three sitters investigated in this experiment. However, it is the uniqueness and extraordinarily evidential nature of the particular reading highlighted in this detailed report that justifies focusing on this 'white crow' research reading." In other words, the researchers base their report entirely on the results with this one sitter. Although one of the criteria for the selection of the sitters was their willingness to rate the transcripts of their readings, such ratings were apparently not done at the time this report was written. The experimenters report that GD estimated that the information given by the medium was at least 90 percent accurate. Presumably this was simply a subjective estimate. In the previous experiments the "accuracy" rating was obtained by calculating the proportion of highly rated items among all of the rated items.

Schwartz et al. state that the complete reading took over an hour. They promised that the full transcript will be made available at some future date. So far, I have not seen it, so I cannot judge to what extent this reading might be qualitatively different from the readings that I have witnessed or read that have been given by Laurie Campbell. In the readings I am familiar with, Campbell throws out initials, names, and vague statements that appear to me to characterize the readings from the many psychic readers and mediums I have studied over the past sixty years. I witnessed a public demonstration by her at a conference sponsored by Gary Schwartz and Linda Russek in Tucson in March 2001. I have also carefully studied the complete transcripts of two readings by Campbell.

At first blush the reading given for GD appears qualitatively different. From what we are told, Campbell apparently stated that the recipient of the reading was named George (true) even though she was supposedly completely blind to his identity. She also correctly indicated that the primary deceased person for GD was a male named Michael (true). She also provided the name "Alice" and later, during the interactive part of the reading, correctly stated that this was GD's deceased aunt. Among the list of names she included in her reading was one that she said sounded like *Talya*, *Tiya*, or *Tilya*. GD has a friend that he calls "Tallia." Campbell mentioned a deceased dog whose name began with an "S." GD had a beloved dog with an "S" name (but not the name used by Campbell). Other names were also relevant including that of GD's father "Bob." The researchers cite other qualitative hits that they believe provide powerful evidence that Campbell is getting information from a paranormal source.

This paranormal source, the authors argue, is not simply extrasensory perception based on GD's thoughts. This is because in the interactive phase of the reading "not only were each of the *four primary people described accurately by Campbell, but four additional facts not known by GD* and later confirmed by sources close to GD indicated that exceptionally accurate information was obtained for GD's deceased and close friends." Because of this, Schwartz argues that the medium is most likely getting her information from the deceased individuals rather than from the sitter's thoughts. At the time of the reading, GD mistakenly thought that Campbell had erred by stating that the granddaughter of his aunt Alice was named "Katherine" because he believed the name was spelled "Catherine." When GD later checked, he discovered that his cousin's name was indeed spelled with a K instead of the C that he was thinking during the reading. Another striking example is where Campbell said "that M [Michael] showed her where he lived; somewhere in Europe, and his parents have a 'heavy accent' (M was German). Laurie Campbell reported that M was showing her a big city, and then M was traveling through the countryside to his home. . . . Campbell claimed that M showed her an old, stone 'monastery' on the edge of the river on the way to his parent's home. This information was not known to GD prior to the reading. After the reading, GD telephoned M's parents in Germany and learned that there was an old abbey church along the river's edge on the way to their house, and that they had held a service for M in this monastery-like stone building a few weeks prior to the experiment."

The medium throws out initials, names, and vague statements that appear to me to characterize the readings from the many psychic readers and mediums I have studied over the past sixty years.

These are examples from this reading that Schwartz insists that the skeptics cannot explain away in terms of normal causes such as guessing and cold reading, fraud, or unwitting sensory leakage. However, the experiment is compromised by so many serious defects that it would be futile for a skeptic to accept this challenge. This would be another example of placing the burden of proof on the wrong shoulders. Although the experimenters try to make a plausible argument against collusion between Campbell and GD, as well as against the possibility that Campbell might somehow have gotten access to the manuscript of GD's forthcoming book (a copy of which was in Schwartz's) possession, the actual controls against such sensory leakage were not very convincing. Indeed, the authors partially acknowledge this defect. "Since the exceptional nature of the data reported here was not anticipated ahead of time, the experiment did not include additional desirable controls. . . ." Although I see no reason to assume that fraud did occur in this instance, I believe that the experimenters have an obligation to their mediums and sitters, as well as to the scientific community, to take all reasonable steps to preclude

fraud as a possibility. By taking such steps they protect their subjects from any suspicions that might arise in this area.

The results would have become more interesting if they had been collected under double-blind conditions—that is, under conditions where Campbell, GD, and the experimenter, Schwartz, were all in ignorance of one another at the time of the reading. Schwartz calls the experiment "single-blind" because at the time of the reading (at least the first portions of it), GD did not know who the medium was and Campbell did not know who the sitter was and was separated from him by a thousand miles. Unfortunately, the experimenter, who *did* know the identity of the sitter as well as quite a bit of his personal history, was with Campbell at the time she was giving much of the reading. Psychical researchers have a long history of dismissing data collected with this weakness as non-evidential.

Probably the most serious weakness of this experiment is that its outcome relies entirely upon the uncorroborated judgments of the sitter GD. Again, Schwartz relies on plausibility arguments for the reliability and validity of GD's ratings of the reading. This is a major defect for many reasons. One is simple rater bias. Individuals can differ widely as to what they will or will not accept as valid for their personal situation. When Campbell says that she is hearing a name that sounds like *Talya, Tily,* or *Tilya,* a sitter with a strict criterion might not accept this as referring to a friend whose name is *Tallia.* On the other hand, a sitter with a looser criterion and who is convinced that the medium is talking about his situation might accept Campbell's probe as referring to a friend with the name of *Tanya, Tina, Tilda, Tony, Dalia, Natalie,* or a variety of other possibilities. Schwartz may be right that it is unlikely that GD would misremember or misreport having a friend by the name of Tallia. However, if the outcome of this reading is so earth-shaking and scientifically revolutionary as he claims it is, I would think that he should at least make the effort to independently check on some of these facts.

This is especially true for "facts" that were unknown to GD at the time of the reading, but were later discovered by him to be true. For example, when GD called M's parents in Germany, how did the questioning take place? Did they speak in German or English? How well does GD speak German? How well do M's parents speak and understand English? Did GD ask the questions in a leading way? Certainly it would have been highly desirable for the experimenters to have independently communicated with the M's parents. Indeed, it would have been better if they, rather than GD, did all the checking. Instead, everything depends upon GD. Such reliance on a single individual in such circumstances is called by psychologists "the fallacy of personal validation."

"Replication" of the Laurie Campbell/GD Reading in a Double-Blind Experiment

What is required, of course, is a successful replication of these apparently spectacular results in a reading conducted under properly double-blind conditions. Indeed, this is precisely what Schwartz claims he has achieved. He and his colleagues finally conducted a double-blind experiment using Campbell as the medium and six sitters, one of whom was GD. During the readings, Campbell and the sitters had no contact and the two experimenters who were with Campbell were blind to the order in which the sitters were run. Later each sitter was sent *two transcripts to judge. One was of the actual reading for that* sitter and the other was of a reading given to another subject. The sitters were given no clues as to which was their actual reading. "The question was, even under blind conditions, could the sitters determine which of the readings was theirs?"

> The findings were breathtaking. Once again it was George Dalzall's [GD's] reading [that] stood out. . . . This provided incontrovertible evidence in response to the skeptics' highly implausible argument against the single-blind study that the sitter would be biased in his or her ratings (for example, misreading his deceased loved ones' names and relationships) because he knew the information was from his own reading. . . . The skeptics' complaint becomes a completely and convincingly impossible argument in the case of the double-blind study. . . . It appeared to be the ultimate "white crow" design. . . . (p. 236)

As these quotations reveal, Schwartz believes this double-blind experiment has put to rest all the skeptical arguments against his evidence. One of Schwartz's mantras in relation to his afterlife experiments is *let the data speak.* When I read the full the report[6] of this "ultimate 'white crow' design," the data did speak loud and clear. However, the story the data told is just the opposite from the one that Professor Schwartz apparently hears.

The plan of the study was admirably simple. Campbell gave readings to the six sitters in an order that neither she nor the experimenter who was with her knew. In this way neither the medium nor the person in her presence was aware of who the sitter was at the time of the reading.[7] At the time of the reading, *the sitter was physically separated from the medium.* The medium gave her readings in Tucson, Arizona, while the sitters were in their homes in different parts of the country. Subsequently, each sitter was mailed two transcripts. One of the transcripts was the actual reading for that sitter and the other was from the reading of another sitter. Each sitter rated the two transcripts, not knowing which was the one actually intended for her or him, according to instructions provided by the researchers. The sitter first circled every item in the transcripts which they judged to be a "dazzle shot." "For you, a dazzle shot is some piece of information—whatever it is *to you,* that you experience as 'right on' or 'wow' or 'that's my family.'" Next, the sitter was instructed to go through the transcripts again and score each item as a hit, a miss, or unsure.

Finally, the sitter designated which of the two transcripts was the one that actually was intended for him or her.

The hypothesis was that if Campbell could truly access information from the sitter's departed acquaintances, this would show up on all three measures. In other words, the sitters would successfully pick their own reading from the two transcripts; they would record significantly more dazzle shots in their own transcripts as compared with the control transcripts; and they would find many more hits and fewer misses in the actual as opposed to the control transcript. *Each one of these three predictions failed.* Four of the sitters did correctly pick their own transcript, but this is consistent with the chance expectation of three successes. On the two more sensitive

measures, there were no significant differences in number of dazzle shots or hits and misses.

The authors admit that for the overall data, "there was no apparent evidence of a reliable anomalous information retrieval effect." So how can they use these results to proclaim a "breathtaking" vindication of their previous findings? This is because, when they looked at the results separately for each sitter, they discovered that in the case of GD, who had been the star sitter in a previous experiment with Campbell, he not only successfully identified his own transcript but also found nine dazzle shots in this transcript and none in the control. The results for the hits and misses were equally striking. He found only a few misses in his own transcript and a large number of misses in the control. He found many hits in his own transcript and not a single one in the control transcript. Given this "unanticipated replication," the authors hail the results as compelling support for their survival hypothesis. However, for anyone trained in statistical inference and experimental methodology, this will appear as just another blatant attempt to snatch victory out of the jaws of defeat. An accepted principle of research methodology is that the reporting of statistical significance from experimental findings derives meaning from the fact that the experimenter specifies *in advance* which comparisons he or she will test. If the experimenter plans to make many comparisons, then the criteria for statistical significance must be adjusted to take into account that the more comparisons that will be made the more chances there will be to find something "significant" just by chance. In the present case, it was obvious that the planned comparisons involved the overall differences between the ratings of the actual and the control transcripts. The authors do not indicate whether they intended to make adjustments for the fact that they were using three different measures, but, in any case, it does not matter because there were no meaningful differences on any of the three indicators.

Of course, these strictures do not preclude the investigators from noticing unexpected outcomes in their data. Such unplanned outcomes can serve as hypotheses for new experiments. When an experimenter finds unanticipated, but interesting, quirks in the data, he or she cannot draw conclusions until the surprise finding has been cross-validated with new data. The reason for this is simple. Any set of data that is reasonably complex will always, just by chance, display peculiarities. Some statisticians and methodologists do allow testing for unexpected findings by means of "post hoc" tests. Such tests require that the departures be much greater than those needed for planned comparisons before they can be declared "significant." Furthermore, such post hoc tests on specific subparts of the data are typically licensed only when the overall tests are significant, which is not the case for the present situation.

So, by commonly accepted scientific practice, the experiment has failed to support the hypothesis it was planned to test. Furthermore, because nothing significant was found, the results do not warrant claiming a successful replication of previous findings. For scientific purposes, this is all that need be said. However, it may be edifying to discuss some additional reasons why the claim for a successful "replication" is highly suspect in the present case. Three of the six sitters for this experiment were selected just because Campbell had provided "successful" readings for them in previous experiments. They were included to see if she could do so again. For two of them, the authors admit that she failed. So it is only for GD that, in their view, she apparently succeeded.

The authors admit that for the overall data, "there was no apparent evidence of a reliable anomalous information retrieval effect." So how can they use these results to proclaim a "breathtaking" vindication of their previous findings?

Comparing the two readings that Campbell gave GD, I find little to support the claim that the second one replicates the apparent success of the first one. Although a full transcript of the first GD reading is still not available, what was included in the first report strongly suggests that the second reading cannot be considered to be aimed at the same individual for whom the first one was given. GD's major interest in mediumship is to establish contact with his deceased partner Michael. Campbell is given credit in the first reading for stating that there was a deceased friend named Michael and then later that he was the primary person for this sitter. The name Michael or a deceased partner does not come up in the second reading. Ironically, the name Michael does appear in the control reading. In the first reading Laurie Campbell mentions a strange name that sounded like *Talya*, *Tiya*, or *Tilya*. GD stated that he indeed had a friend (living) named Tallia. No such name appears in the second reading. Indeed, of the twenty names Campbell produced in the first reading only three come up in the second reading, and these are such common ones as *George*, *Robert* or *Bob*, and *Joe* or *Joseph*. In none of these three cases does she identify whether the person is living or dead or what relationship he has to GD. None of the "specific" facts that she apparently stated during the first reading come up in the second one.

Schwartz claims that the rater bias could not have affected the ratings of this double-blind experiment. A look at GD's dazzle shots and his discussion of the hit and miss data suggests otherwise. His first dazzle shot is "Bob or Robert." These names occur early in the reading in a statement that goes, "And then I could feel like what I thought was like a divine presence and the feeling of a name Mary or Bob or Robert." This appears in a context with other names and other general statements, none of which even hint of a father. The second dazzle shot is "George." Again this appears in a context with no hint

that this could be referring to the sitter. Campbell states, "I got like some names like a Lynn, or Kristie, a George." His third dazzle shot is the statement, "I had the feeling of a presence of an Aunt." GD identifies this aunt as his aunt Alice, although Campbell does not provide the name Alice anywhere in the reading. I count at least twenty-seven names thrown out by Campbell during this second reading. Actually, she covers a much broader range of names because she typically casts a wide net with statements like: "And an 'M' name. More like a Margaret, or Martha, or Marie, something with an 'M.'" It is up to the sitter to find a match. As indicated by his dazzle shots, GD is strongly disposed to do so.

In his qualitative commentary, GD was obviously influenced in selecting one of the transcripts as his reading because it begins with the statement, "I kept feeling the presence of a male." The control reading happens to begin with the statement, "Now, um, to start with I felt like a woman's energy." GD wrote, "I was impressed that the reading is gender specific and accurate. . . ." Instead of assuming that Campbell was somehow conveying information to GD from his departed relatives, it is just as plausible to assume that once GD decided that the actual transcript was meant for him, then subjective validation took over and did the rest. There is, of course, a 50/50 chance that the actual reading is the one that GD will decide is meant for him. From then on, he would read that transcript as if it were truly describing his departed relatives and reject the other as not relevant.

This conjecture fits well with everything we know about subjective validation and the acceptance of personality sketches that one believes was meant for one's self. Is this farfetched in GD's case? To me, it seems quite obvious just reading the transcript and looking at GD's ratings. The entire case for the reading's validity is based on the assumption that Campbell is describing GD's summer vacation home on Lake Erie in upstate New York. Given this assumption everything is then interpreted within this context. Of course, Campbell never states that she is describing a summer vacation home. It is GD who makes this connection. As just one of many examples of how GD is creative in making the reading fit his circumstances, he gives Campbell credit for having identified the color of their summer cottage which was painted yellow with white trim on the windows. Campbell does, at one point, say, "And I kept getting colors of like yellow and white." This is in a context where she is talking about a woman who spends all her time in the kitchen. One could construe this as perhaps describing the interior colors of the kitchen, the woman's clothing, the old mixer she is *described as using, among other possibilities. However, the* statement is far removed for any mention of the exterior of the house as such. Earlier in the reading she mentions a white house. A little bit further on, she again mentions a house. She immediately follows this with "And I kept seeing the colors of like grays and blues, but that looked real weathered." Obviously, if the house had been gray and blue, Campbell would have been given credit for a direct hit. GD manages to ignore this and gives Campbell credit for having correctly described the house as yellow and white.

Again, I suspect that Schwartz will disagree with my interpretation. After all, he has already gone on record that this study "provided incontrovertible evidence in response to the skeptics' highly implausible argument against the single-blind study that the sitter would be biased in his or her ratings (for example, misrating his deceased loved ones' names and relationships) because he knew that this information was from his own reading." Nevertheless, the data are quite consistent with the possibility that all we have to do to account for his "breathtaking" findings is to assume that they are due to rater bias.

Conclusions

So what is the bottom line? *The Afterlife Experiments* describes a program of experiments described in four reports using mediums and sitters. The studies were methodologically defective in a number of important ways, not the least of which was that they were not double-blind. Despite these defects, the authors of the reports claim that their mediums were accessing information by paranormal means and that the application of Occam's Razor leads to the conclusion that the mediums are indeed in contact with the departed friends and relatives of the sitters. Schwartz's demand that the skeptics provide an alternative explanation to their results is clearly unwarranted because of the lack of scientifically acceptable evidence. A fifth report describes a study that was *designed to be a true double-blind experiment. The out*come, by any accepted statistical and methodological standard, failed to support the hypothesis of the survival of consciousness. Yet the experimenters offer the results as a "breathtaking" validation of their claims about the existence of the afterlife. This is another unfortunate example of trying to snatch victory from the jaws of defeat.

Notes

1. Fans of Martin Gardner will recognize the similarity of this title to that of Martin's book *How* Not *to Test a Psychic* (1989, Prometheus Books). I thank Martin Gardner for his agreeing to let me adapt his title for this review.

2. The principle usually *attributed* to William of Occam is typically stated as "entities are not to be multiplied beyond necessity." This statement, as such, cannot be found in the extant writings of William. The principle was known before William was born. However, he did write many different statements that are consistent with the principle such as, "It is vain to do with more what can be done with fewer."

3. Wiseman, R., and C. O'Keeffe. 2001. Accuracy and replicability of anomalous after-death communication across highly skilled mediums: A critique. *The Paranormal Review*, 19: 3–6. (Also in the SKEPTICAL INQUIRER, November/December 2001.)

4. Schwartz, G.E. 2001. Accuracy and replicability of anomalous after-death communication across highly skilled mediums: A call for balanced evi*dence-based skepticism. The Paranormal Review: 20.*

5. For discussion of this concept and for a very striking illustration of subjective validation in operation see Marks, D. (2000, second edition), *The Psychology of the Psychic.* Amherst, N.Y.: Prometheus Books.

6. Schwartz, G.E., S. Geoffrion, J. Shamini, S. Lewis, and L. Russek. (Submitted to the *Journal of the Society for Psychical Research.*) Evidence of anomalous information retrieval between two research mediums: Replication in a double-blind design. (I obtained a copy of this report from Professor Schwartz in August 2001.)

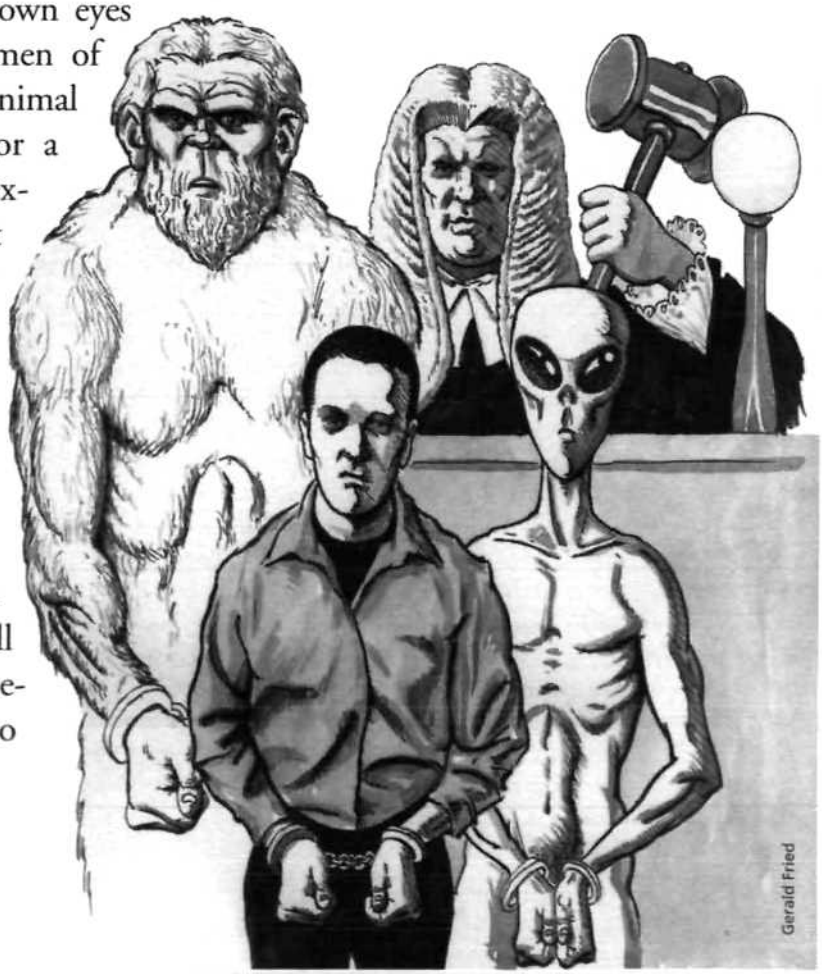
7. Unfortunately, the double-blind procedure was not ideal. The research coordinator, who was aware of the sitter's identity, phoned Laurie Campbell and the sitter just before the reading. In this way, the medium had contact with someone who was aware of sitter's identity just prior to the reading. □

Beliefs on Trial, and the Legality of Reasonableness

Ever thought about becoming a lawyer? Here's your chance to don a black robe and horsehair wig, and apply some legal principles to skeptical inquiry.

RICHARD M. FISHER

Let's face it: skeptics are party poopers. Who can deny how wonderful it is to harbor a hope that we might one day see with our own eyes a captured, living specimen of a previously unknown animal from a highland lake, or a dead but very real extraterrestrial, wheeled out for public display by a sheepish and apologetic Defense department? Who wouldn't appreciate confirmation of a remote letter or telepathic phone call from a departed loved one saying that all is well in the next world, especially one that chides us to



"stay in touch"? How comforting it would be to know that we are not alone in the universe, and that we need never be lonely in the here or hereafter.

The skeptic stands in stark contrast to this desire for belief in what sustains us emotionally. Arms folded sternly, a skeptic has the affront to rain on everyone's parade by demanding not only proof of an assertion, but extraordinary proof to boot. And therein lies the rub. Believers can claim that they can't satisfy a skeptic, because the standard of proof demanded by skeptics is too high. They'll argue that maxims like "extraordinary claims demand extraordinary proof" would never stand up in a court of law. To require that a claimant has to provide extraordinary proof would be tantamount to requiring proof not just beyond a reasonable doubt, but beyond all *possible* doubt. Stated another way, people are currently doing life for murder on a lesser standard than a skeptic would require. Is that fair?

Key legal concepts, such as burden of proof and standards of proof, can add value to skeptical inquiry. Since trial lawyers are essentially paid skeptics, it seems only fair to ask if they have any useful investigative tools to offer.

Key legal concepts, such as burden of proof and standards of proof, can add value to skeptical inquiry. Since trial lawyers are essentially paid skeptics, it seems only fair to ask if they have any useful investigative tools on offer. I argue that skeptics do themselves a disservice by acting as judge, juror, and executioner in debunking paranormal phenomena. Instead, I introduce an interesting character called "the reasonable person," and explain how deference to this lively sprite allows for a pragmatic, objective approach to investigations of the unknown.

Scientific Standards and the Burden of Proof

The general maxim in most inquiries is that the burden of proof lies on the party making the claim (or a claim that contradicts established theory; see Caso 2002). However, the point at which the burden of proof is discharged is much harder to resolve. Even if we establish with certainty who is ultimately responsible for carrying the burden of proof, we haven't specified the amount of evidence that will be required to discharge it. For example, a salesman might be able to convince me, but not you, that his snake oil will cure my corns. That may be because I'm a real rube compared to you. Or it may be that my corns are really killing me at the moment, so I'm going to be much more likely than you to take a stab at any cure, no matter how far-fetched it is. That's because I have a greater vested interest than you do in holding onto a belief for a cure.

Consequently, we can see that quantifying the amount of evidence required to discharge a burden of proof can be quite subjective. The critical juncture at which I have seen enough evidence in order to be convinced of the truth of a claim could be very different from yours, in some cases dramatically so.

In order to equalize the playing field, skeptics turn to science, or the scientific method, for help. The scientific method demands absolute objectivity and a rigorous framework for investigating phenomena. A hypothesis is erected, and data are gathered, with the result that the hypothesis is ultimately accepted or rejected. The person proposing the hypothesis bears the burden of proof. The standard of proof in discharging it, in many instances, is one based on probabilities. For publishing in most scientific journals, the minimum standard is $P < 0.05$. In other words, in order to convince me, and others, that the results are valid, you must be able to show, by statistical analysis, that if you repeated the experiment 100 times, you would be expected to get the same result 95 times out of 100. It would be even nicer if you agreed to a more stringent standard of $P < 0.01$ (99 times out of 100) or $P < 0.001$ (999 times out of 1000). [But also see "Hypothesis Testing and the Nature of *Skeptical Arguments*," by Massimo Pigliucci, SKEPTICAL INQUIRER, November/December 2002.]

Skepticism as a Matter of Law

Scientific measurements of probability work well when investigating phenomena like ESP, which lend themselves to repetitive experimentation. However, they fail us when claims involve presence or absence arguments, as in the existence of an unknown animal. In those circumstances, we must assess a claim objectively, by reference to the type of claim being made, the *bona fides* of the claimant, and other relevant circumstances. We are no longer dealing with the issue as one of experimentation. Rather, we have become triers of fact. We have put the claimant "on trial," and, like any good justice system, we seek cogent and persuasive arguments both for and against the claim. We weigh that evidence objectively, and ultimately deliver a verdict as to our acceptance or rejection of the claim under scrutiny.

If we follow our legal line of reasoning a little further, we can see that we must give the claimant an opportunity to call witnesses in support of the claim, and to adduce any other evidence we jointly agree is relevant to the factual issues at hand. The claimant should have a full and fair opportunity to present a case. We in turn should have an opportunity to cross examine the claimant's witnesses, and afterwards to adduce our own evidence, possibly by way of expert testimony. Ultimately, a verdict of acceptance or rejection is rendered, based on the totality of the evidence presented.

Approaching paranormal and other phenomena as a legal inquiry offers many advantages. For one thing, it allows us to

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specify the legal standard of proof that will be required to discharge the burden on any party. I'll return to this theme momentarily. More important, it gives decision-making power to the people who need it: not you and me, but ordinary people sitting on the jury. Why is that important? Consider for a moment. Since you and I both read this magazine, it is likely that we already share a healthy dose of skepticism regarding what we see and experience. What we have to remember is that, as skeptics, our role is not necessarily well served by sitting as judge and jury. Rather, we are better off acting as lawyers, distasteful though that concept may be at first glance.

Believe it or not, lawyers are "officers of the court," and as such are required by law and by ethical standards to uphold the principles of truth and fairness. The value of acting as lawyers it that it allows us to seek out and discredit false and perjurious statements, to put relevant facts before the court, and to ensure that both sides of a claim are given full hearing. Ultimately, it is the jurors who make the call, not you or I. Who are they? By rights, they include the gullible, the financially vulnerable, the terminally ill, and the bereaved. It is these folks who are most likely to be swayed towards false beliefs, for all the wrong reasons. These are the people we should be trying to reach. These are the people we should be trying to empower, by allowing them to sit in informed judgment on paranormal and other claims.

A cynic might interject at this point that it's not possible to get a balanced "jury of peers" when it comes to debunking the paranormal. I wouldn't go so far, although I would agree that we must do what we can to guard against a loaded jury. Even a loaded jury must submit to your argument, if it is sufficiently powerful and persuasive. At the end of the day, the risk of a bad jury must be weighed against the opportunity to allow other people besides us into the decision-making process, and thus "reach out" to the widest possible audience.

The Reasonable Person

The law has given us a number of helpful principles that can help in judging skeptical claims. They include such things as *stare decisis*, a common law principle whereby the rulings in previous cases with similar fact evidence are to be followed, wherever possible. That means that someone now claiming to have the power of ESP, following a long line of ESP cases that have not shown persuasive proof of the claim, will be decided the same way, barring new and novel evidence.

Another very interesting legal principle is "the reasonable person [RP] standard." Although largely a child of tort and contract law, RP wanders extensively throughout most areas of jurisprudence. In a claim of negligence, for example, RP is the standard to which the behavior of a defendant is compared. If a reasonable person, with like education, experience, and capacity as the defendant, would have acted in the same way when faced with the same circumstances, than the defendant is judged to have acted reasonably, and is exonerated.

While RP can't be expected to have the deductive power of a Ph.D. in science, there isn't room for gullibility in RP's makeup either. The reasonable person standard in tort law, for example, doesn't allow a defendant to argue that he had an honest but mistaken belief in the value of pouring gasoline on a smouldering fire in order to put it out. The standard refers to an ordinary person with like skills and experience as the defendant, standing in his shoes. Standing back from the matter in this way, its pretty obvious that throwing gasoline on a fire is unacceptably stupid from RP's point of view. Similarly, an honest belief that poltergeists caused pictures to move in a house which is otherwise located on a known fault line won't cut it as an explanation, if the reasonable person would conclude it was more likely due to a mild tremor.

An honest belief that poltergeists caused pictures to move in a house which is otherwise located on a known fault line won't cut it as an explanation, if a reasonable person would conclude it was more likely due to a mild tremor.

One might therefore argue that RP generally acts in support of Occam's Razor. The razor is a principle that tells us not to needlessly multiply the number of entities in order to explain what we see. In science, for example, our best explanations are those that explain the most with the fewest number of causal variables. RP isn't as slavish as the razor at accepting the simplest explanation, however, and takes us away from it

Reasonable Phrases

Don't say: Have I been shown enough evidence to be personally convinced?
Do say: Would a reasonable person be convinced of the claim, based on the totality of evidence for and against it?

Don't say: The person making the claim always has the burden of proof.
Do say: While the claimant may have the ultimate burden of proof, I am prepared to accept an evidential burden of providing contradictory proof, as and where necessary.

Don't just say: Extraordinary claims require extraordinary proof.
Do say, in addition: It's reasonable in some circumstances to require that extraordinary claims require extraordinary proof.

Try not to say (even if it requires some tongue biting on your part): The claimant is a quack/crackpot/fool, etc.
Try to say, with charity: The law teaches us that *ad hominem* attacks are unhelpful in seeking truth. It instructs us to concentrate on the evidence. Where is yours?

whenever it would be reasonable to do so.

The Reasonable Person also protects us from extraordinary claims made by experts. This is very useful, because we often seek to defer to the expert opinions of those more trained than ourselves. Unfortunately, some of these folks aren't as skeptical as we are, and some are out-and-out flakes. That's a problem, because the credentials of professionals lend credence to their beliefs, however outrageous. Fortunately for us, RP will have none of it. For example, if an air traffic controller makes a claim that he or she has witnessed a UFO on a radar screen, RP demands an answer to the following question: "Would a reasonable air traffic controller, with similar background and experience to the claimant, have been led to the same inescapable conclusion?" This line of inquiry weeds out extremists really quickly, including experts.

Suppose someone wanders into town with a story of an encounter with Bigfoot, including some photos. If we use a legal framework, they would have the legal burden of proving the existence of the creature.

Burdens of Proof

Thanks to the O.J. Simpson trials, most people now know that there are different legal standards of proof, including a civil standard of "proof on the balance of probabilities," and a more stringent criminal standard of "proof beyond a reasonable doubt." They also know, again thanks to O.J. Simpson, that applying the different standards can lead to drastically different outcomes.

Before we apply the standards, however, we need to know who has the legal burden of proof. The law is much more fluid in this regard than you might think. In a criminal charge, for example, it's not always the case of "innocent until proven guilty." There are many charges for which you are considered guilty unless proven to the contrary by you. They include traffic infractions like speeding and parking, and strict liability offenses like some pollution offenses, where you are considered guilty subject to your success in raising a due diligence defense.

Let's put our legal training to work in a hypothetical fact case. Suppose someone wanders into town with a story of an encounter with Bigfoot, including some photos. If we use a legal framework, that person would have the legal burden of proving the existence of the creature throughout all that follows. However, by handing us some photos, and an eyewitness story, they have discharged an evidential burden of proof. That is, they have provided evidence, sketchy though it may be, and the evidential burden then falls on us to refute the evidence shown, or provide other, contrary evidence. The evidence that each of the parties provides is assessed, in terms of its "probative value." That value is equivalent to the weight of a given piece of evidence in proving or disproving a fact at issue. The probative value of a blurry photo will be low, an organic tissue sample very high.

A fair generalization is that in law there are many moments when the evidential burden can be shifted from one side to the other, as and when parts of a claim are proved or disproved. As a result, we don't need to spend time worrying about where the burden of proof compass points, because we are much more likely to be interested in assessing the claim in its entirety. If, after weighing all the evidence, *a jury would believe the claimant's Bigfoot* story, then the equivalent of that party's legal burden has been discharged.

Which Standard of Proof?

The Reasonable Person revisits us in terms of legal standards of proof. In criminal law, reasonableness is central to "proof beyond a reasonable doubt," although further explanation of this application is necessary, as it would be in any jury trial. If in a mock trial of paranormal phenomena, for example, we demanded that a claim of clairvoyant power was proven beyond a reasonable doubt, the trial judge would be required to explain to the jury what "beyond a reasonable doubt" meant before sending them off to consider a verdict. There are standard definitions to which judges refer when defining the term to juries. One from Lord Denning in the United Kingdom (quoted by Mathieson 1997) runs like this:

> Proof beyond a reasonable doubt does not mean proof beyond the shadow of a doubt. The law would fail to protect the community if it admitted fanciful possibilities to deflect the course of justice. If the evidence is so strong against a man as to leave only a remote possibility in his favour, which can be dismissed with the sentence "of course it is possible but not in the least probable" the case is proved beyond reasonable doubt, but nothing short of that will suffice.

Note that we are applying reasonable doubt in a civil context, so that the burden lies on the claimant, for reasons we just discussed. Why should we use a criminal standard of proof in debunking phenomena, rather than a lesser one "on the balance of probabilities"? We could offer the lame—although correct—answer that proof beyond a reasonable doubt is a stringent, and therefore useful, model available to us from hundreds of years of law practice. Further, we are only borrowing the procedural elements of the standard, and are not applying them strictly in the context of guilt or innocence. However,

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Placebos, Nocebos, and Chiropractic Adjustments

Appropriate spinal manipulation provides both real and placebo benefits in the treatment of mechanical-type neck and back problems. But chiropractic adjustments based on the vertebral subluxation theory may offer a placebo effect that is outweighed by a nocebo effect.

SAMUEL HOMOLA, D.C.

The word *placebo*, which is Latin for "I shall please," first appeared in the literature in 1785 and was eventually defined as "make-believe medicine." Physicians have long known that if a patient believes in a doctor or a remedy, the response to treatment is better—even if the treatment is a sham. Doctors quickly learned to make an effort to cultivate the confidence of their patients in order to make treatment more effective.

The beneficial effect of faith or belief in a treatment method is now known as a "placebo effect," which can occur when treatment is pretended or as an additional benefit when the treatment is real. Of course, a placebo works primarily on the mind, making the patient believe that he or

she is feeling better, even though there may be no real effect on the disease itself. But there is reason to believe that a placebo effect may offer some temporary physical benefit.

Placebo Controversy

It's well known that faith in a make-believe treatment may actually help relieve pain by stimulating the brain's production of endorphins. But according to an article in the May 24, 2001, issue of the *New England Journal of Medicine* (Hrobjartsson and Gotzsche 2001), such pain relief is too small to warrant use of placebos except in clinical trials. The researchers concluded that there is little evidence that placebos have any powerful clinical effects or any significant effect on objective outcomes.

Reviews of the literature suggest that spinal manipulation is effective in the treatment of some types of neck and back pain, but this has nothing to do with the chiropractic subluxation theory.

Three months after that report, a study published in *Science* (Fuente-Fernandez, Ruth, and Sossi 2001) reported that Parkinson's disease patients who took an inactive placebo drug experienced a substantial increase in release of a brain chemical called dopamine, temporarily relieving their symptoms. "This is not a small effect," the researchers noted. "This is a big effect." The February 7, 2002, issue of *Sciencexpress* also reported findings challenging the *NEJM* report suggesting that the placebo effect is not significant. Using positron emission tomography, scans of the brain showed that inactive medication and placebos, like opioids, influenced brain centers to produce pain relief (Ingvar 2002).

No physician would knowingly substitute an inert placebo for a proven treatment. No one would seek out a physician who treats primarily with placebos. But like it or not, the placebo effect is a part of every treatment administered by every trusted and well-liked physician or therapist. And this is okay if the placebo effect is associated with an evidence-based treatment and the patient is not given misinformation.

Placebos and Quacks

The placebo effect opens a window of opportunity for quacks and cultists who take advantage of the effect to obtain testimonial-type support for a variety of unsubstantiated treatment methods. A true quack may offer a placebo or a make-believe treatment along with a fabricated explanation that misleads patients into depending upon a nonsensical treatment method. An alternative healer might interpret the placebo effect as proof that his particular remedy is a truly effective treatment for disease. And when remission or natural recovery occurs, as often happens, anecdotal evidence derived from patients' testimony is offered as proof that a cure has occurred.

Many alternative medicine practitioners using methods based on vitalistic nonsense capitalize on the placebo effect by using it to sell courses of treatment to suggestible persons. In some cases, a treatment that initially has a positive placebo effect can ultimately have a negative *nocebo* effect, leading to dependence upon the treatment. This happens most often when the remedy used to treat the disease is also used to "remove the cause of disease." Probably the best example of treatment that has both placebo and nocebo effects is a chiropractic spinal adjustment based on the vertebral subluxation theory. Active medications of real value can also produce nocebo effects when a patient is fearful and has expectations of adverse effects, though benefit may outweigh risk (Barsky et al. 2002). But when a patient receives repeated spinal adjustments to correct imaginary subluxations believed to be a cause of disease, risk outweighs benefit.

The Nocebo Effects of Chiropractic Spinal Adjustments

There is plenty of evidence to indicate that spinal manipulation has beneficial effects—both real and placebo. When spinal manipulation is based upon the vertebral subluxation theory, however, as presented by some chiropractors who offer "spinal adjustments" as a treatment for organic disease, nocebo effects outweigh the placebo effects. Spinal manipulation used to relieve back pain or restore joint mobility ends when symptoms are relieved and the patient is released. But when the benefits of spinal manipulation are attributed to correction of life-threatening subluxations, fear perpetuates treatment.

Many chiropractors believe that subluxations "compromise neural integrity and may influence organ system function and general health" (Association of Chiropractic Colleges 1997) and that spinal adjustments to correct subluxations will restore and maintain health—a scientifically indefensible position. There is no evidence that such subluxations exist. Reviews of the literature suggest that spinal manipulation is effective in the treatment of some types of neck and back pain (Coulter et al. 1996; Bigos et al. 1994), but this has nothing to do with the chiropractic subluxation theory. One prominent researcher in the field of complementary medicine has suggested that ". . . the therapeutic success of spinal manipulation is largely due to a placebo effect" (Ernst 2000). When manipulation is used inappropriately as an ongoing treatment for elusive chiropractic subluxations, however, the nocebo effect may be more prominent than the placebo effect.

Placebo effects are especially prominent in unconventional healing because of personal attention, compassionate care,

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Gerald Fried

enhanced expectations, and other effects of a close patient-physician relationship. A hands-on chiropractic adjustment to remove "nerve interference" caused by a "subluxated vertebra" will have a temporarily positive influence. When self-limiting conditions are involved, this placebo effect may outweigh the effects of an evidence-based treatment method. But when there is a specific disease requiring a specific treatment, a relatively impersonal, evidence-based treatment method is ultimately more effective than a placebo. When spinal manipulation is used inappropriately as an ongoing treatment for elusive chiropractic subluxations, however, the nocebo effect will eventually become more prominent than the placebo effect. An asymptomatic and elusive chiropractic subluxation is not the same as an orthopedic subluxation that can be confirmed with both subjective and objective signs. Spinal manipulation from a medical perspective is not the same as a "chiropractic adjustment." Although some chiropractors prefer to use "joint dysfunction" or some other term rather than subluxation, there is no reason to believe that vertebral misalignment or any other dysfunction in structures of the spinal column can cause organic disease (Nansel and Szlazak 1995).

Popping as Proof

Many chiropractic patients who receive spinal adjustments to restore and maintain health become convinced that they have vertebrae out of place when they hear popping sounds during treatment. Except in rare cases when a joint is truly locked or binding, the popping sound heard when joint surfaces are forcefully separated by manipulation is meaningless. This sound is most often produced by cavitation that pulls in nitrogen gas to fill the vacuum created when the fluidic attraction between joint surfaces is broken. Chiropractic patients, and many chiropractors, interpret this sound as proof that a subluxated vertebra has been moved back into alignment. The truth is that perfectly normal spinal joints will pop when manipulation forces movement into the paraphysiologic space (beyond the normal range of passive movement). Once a joint pops, it will not pop again until the gas is absorbed and the joint surfaces settle back together, usually in about half an hour. It is essentially the same as cracking one's knuckles.

If a patient is told that the pop heard during spinal manipulation means that the cause of a problem has been corrected, this can have a very powerful placebo effect, which may relieve pain as well as convince the patient that the treatment is effective. But since the vertebrae pop each time the adjustment is repeated, the patient may become convinced that vertebrae are constantly slipping in and out of place, indicating an ever-present cause of disease in the spine. The patient may then believe that illness will occur if the imaginary spinal subluxations are not corrected by regular adjustments—a very powerful nocebo effect.

Some chiropractors take advantage of a patient's fear of subluxations by recommending regular "preventive maintenance" spinal adjustments, which contribute more to the chiropractor's pocketbook than to the patient's health. Patients of such chiropractors become psychologically addicted to treatment they do not need. James Cyriax, a prominent English orthopedic surgeon

who specializes in the use of spinal manipulation, has referred to this fear as "chiropractogenic neurosis" (Cyriax 1955).

Patient Re-education

In my forty-three years of practice as a chiropractor, I often had a difficult time convincing patients that they did not have vertebrae out of place and did not need regular spinal adjustments. On many occasions, when one of the local chiropractors was out of town, I would receive frantic calls from some of the chiropractor's patients requesting an "emergency" adjustment. "I stumbled," the patient might say, "and I have jerked some of my vertebrae out of place. My doctor is out of town and I need my alignment corrected."

Fearful that delay in correcting subluxations in the spine might trigger development of illness, some chiropractic patients become permanent patients—victims of the nocebo effect. When I was forced to see such patients, I was compelled to inform them that nothing was wrong with their spine and that they had been misinformed. Some of these patients were actually fearful of bending over to pick up a newspaper or turn their head while backing a car lest they disturb the alignment of their vertebrae. They were literally vertebral cripples as the result of a totally imaginary problem—products of the practice-building efforts of a few unscrupulous or misinformed chiropractors.

Appropriate Spinal Manipulation is Not Alternative Medicine

Appropriate spinal manipulation is used for a specific reason for specific mechanical-type problems; when it is indicated, there is no better alternative. Spinal manipulation based upon an unproven theory that encompasses the gamut of human ailments, however, is unproven treatment, falling in the category of alternative medicine, a haven for a variety of nonsensical treatment methods.

If the chiropractic profession fails to prove or abandon the subluxation theory and train properly limited chiropractors who specialize in the care of back pain, it may continue to seek shelter under the broad umbrella of alternative medicine, depending upon anecdotal placebo evidence and the nocebo response to justify continued use of spinal adjustments to "restore and maintain health."

Without the support of evidence-based medicine, chiropractic may remain a marginal, unproven alternative healing method, making it necessary to rely upon practitioners in the field of physical medicine to supply appropriate spinal manipulative therapy. Although many chiropractors do a good job treating neck and back pain, chiropractic treatment based on the vertebral subluxation theory may do more harm than good, with many chiropractic patients becoming victims of the nocebo effect (Homola 2001).

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why not let RP leap to the rescue? According to RP, the standard of proof will depend on what is reasonable in the circumstances. Stated another way, it may be perfectly reasonable to require not just proof beyond a reasonable doubt, but extraordinary proof, if that is what would be expected from any other person standing "in the shoes of the claimant," in other words someone with like qualifications and experience, in the same circumstances.

Some Final Advice

I've suggested a fresh approach to skepticism by referring to a rich history of skeptical investigation that has been occurring in courts for a very long time. Legal professionals may growl at my attempts to transfer legal principles. This should in no way be interpreted as an attempt on my part to cop out with a last-minute waiver on the value of what I've attempted. I think that the most useful aspect of applying a legal framework to skeptical inquiry is that, by and large, people respect the law. It is something to which people can relate, unlike a single, wavering candle of science. The candle burns enticingly, but is always in danger of being snuffed out. Perhaps more important, science can teach us only what is possible; the law teaches us what is permissible. In deferring to it, we can bring science and all that it offers to a public place, where people can judge its value for themselves. Such an approach is, after all, only reasonable.

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Pliny the Elder
Rampant Credulist, Rational Skeptic, or Both?

Pliny the Elder's Natural History *was the premier source of information about the natural world for fifteen hundred years. Yet it contains blatant absurdities. What does that tell us about Pliny, and, perhaps, ourselves?*

KEN PAREJKO

New biological adaptations such as hemoglobin, feathers, placenta, or eyes are not produced by natural selection *de novo.* It is likely that good evolutionary reasons, which increased the biological fitness of our ancestors, resulted in the human brain's ability to consider, weigh, and decide. It seems too that the easy acceptance of superstition may have served the species in some way, or magical thinking would not have arisen and survived. The battle between magical and more scientific thinking did not begin yesterday. Imagine yourself eavesdropping by a Paleolithic campfire:

Lagen, torch in hand, rises: "Well, time to get back in the cave and paint another bison."

Murd, shaking his head: "I don't know why you bother. . . ."

Lagen: "You want to eat, don't you? It's by capturing the spirit-power of the buffalo that they allow us to kill them."

Murd: "What a silly idea. You'd be better off spending your time down by the river, studying the herd."

Pliny's *Natural History*, an encyclopedic compendium of Roman knowledge, was called "one of the most precious monuments that has come down to us from ancient times."

That conversation continued ten millenia ago, when of the five million or so of us on earth only a few were just beginning to farm and keep animals. Without the rational thinking and the empirical method it is likely no crops or cattle would have been domesticated, no advances made in metallurgy or pottery; yet cave-paintings, grave-sites, and other artifacts are evidence of a world-view saturated with magical thinking.

Until 495 B.C. the city of Miletus was the greatest of the Greek cities when, after an unsuccessful revolt against the Persian tyrants who controlled it, the city was destroyed. In the Western philosophical tradition, it was in Miletus that the first clearly recognizable steps toward rational empiricism took place. There Thales provided carefully thought-out natural rather than supernatural explanations for phenomena such as eclipses. From our perspective his conclusions might seem quaint (e.g., that the fundamental element of the universe is water, and that Earth is floating in a great cosmic sea). But it was the methodology of rational inquiry which set Thales, Anaximander, Empedocles, Leucippos, and Anaximenes apart from their colleagues.

Alongside the Milesians there remained a strong school of mysticism and other-worldliness, derivative of Orphism and represented in the philosophical tradition by the great mathematician Pythagoras (whose religion, Bertrand Russell says in his *History of Western Philosophy*, was based on two principles: first the transmigration of souls and secondly the sinfulness of eating beans). The contrast between the rational and mystical aspects of life is often epitomized as the conflict between the Apollonian and the Dionysian. Like a vestigial organ which once served a purpose, the Dionysian remains and is likely to remain so long as the species exists. Intuition and magical thinking have long been used to explain or control those phenomena beyond the ken of the empirical method. As science has come to explain more and more of the natural world, the utility of magical thinking, though perhaps not its ubiquity, has declined. Some would say there are aspects of the Dionysian we may need, to be healthy humans. But whether superstition and the primitive will-to-power can be destructive or not is no longer open to debate, given our history of religious fanaticism, Inquisitions, tribal nationalisms and more recently, New Age credulity.

In their study of the natural world Aristotle and his student Theophrastus provided the fundament of Roman natural philosophy. In 22 A.D. Gaius Plinius Secundus, usually referred to as Pliny the Elder to differentiate him from his nephew Pliny the Younger, was born into a Roman culture with one foot still deeply implanted in the cult of magic and supernaturalism and the other resting more timidly in the landscape of Thale's and Aristotle's rational empiricism. Pliny was a dyed-in-the-wool Stoic. The early Stoic Chrysippus, who some say was a better logician than Aristotle himself, described philosophy as an orchard, with logic its walls, natural philosophy (later called science) its trees, and ethics its fruit. The primary purpose of a Stoic life is to live virtuously. This means to live according to natural law (to "follow nature"), and to understand natural law one needs to study and understand the world. Stoic ethics, in other words, is informed by and grows naturally out of science (Becker 1998).

Pliny's *Natural History*, an encyclopedic compendium of Roman knowledge, was called by Cuvier "one of the most precious monuments that has come down to us from ancient times" (Cuvier 1854). Though from his work comes the modern usage of the word "encyclopedia," Pliny did not invent the genre. Compendia of Roman knowledge were quite popular at and around his time, when we have Seneca's *Natural Quaestiones*, Celsus's *Artes*, Varro's *Disciplinae*, Columella's *De Re Rustica*, and Dioscorides's medical encyclopedia. But Pliny took the genre to the extreme. In his introduction he claims to cite 100 authors of some 2,000 books, from which he claims to discuss 20,000 topics. He is one of the first authors to provide citations at the end of each chapter, and to organize his work with a table of contents.

Though there may be 20,000 topics in his *Natural History*, the simple fact is that far too many of the "facts" Pliny provides us are not facts at all, but unverified anecdotes reported as facts. If we were to swing an imaginary "B.S." detector over Pliny's book, the meter would read off-scale. What do we make of this? How does it affect our judgment of poor Gaius Plinius? Is he a rampant credulist, rational skeptic, or both?

The evidence he leaves in his *Natural History* suggests that Pliny was no different from most of us. His belief system and the structure by which he explained the world grew naturally out of the culture in which he was raised and lived, and though he might now and then reach beyond that culture, unlike either Thales or Aristotle, Pliny was neither genius nor pioneer.

Yet Pliny stood at a significant decision point of Western history, when one pathway to the future could have followed Stoic ethics towards the close study of nature and our role in it. Instead, within a few centuries of his death the dark barbarity

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of the Church fell over Europe, arresting the nascent rationality of pagan philosophy. The evidence we have, as we read his *Natural History*, suggests Pliny was a conflicted man, with a deep belief in skepticism and rational inquiry, yet unable to rise out of the magical thinking endemic around him.

What follows is evidence first of Pliny's gullibility, then of his skepticism, and then of that boggy ground in which Pliny wavers between the two. If space allowed, it would be possible to expand these examples many times over. Book and chapter citations to Pliny's *Natural History* are provided.

Pliny the Credulist

That the water sheep and cattle drink turn them black, white, or red. (2.106)

That the human body weighs more after death or when asleep. (7.18)

That in Ethiopia one can find winged horses with horns, called pegasi, the mantichora, with the face of a man, body of a lion, and tail of a scorpion, and the catoblepas, a look into the eyes of which causes the looker to fall dead. (8.30)

The porcupine can shoot its quills. (8.53)

If a shrew runs across a wheel-rut, it dies. (8.83)

Frogs melt away into slime in the fall and come back together as frogs in the spring, by some "hidden operation of nature." (9.74)

A fish called the *anthiae*, which rescue their hooked companions by cutting the fish-line with their fin. (9.85)

Plagues of flies in Egypt are killed by sacrifices to Isis. (10.40) (Pliny, like many Romans, appears especially gullible to Egyptian religious rituals; but that may simply represent his desire to please his patron, the emperor Titus, who was very taken with things Egyptian.)

Thunder addles eggs, the cry of a hawk spoils them. (10.75)

After covering, the mare runs north if she's just conceived a mare colt, south if a stallion colt. (10.83)

In India there are three-foot locusts, which people dry the bodies of and use the legs for saws. (11.35) (Here, Pliny hedges his bets, prefacing this report with "it is said that. . . .")

In Cyprus there lives an insect like a fly that lives in fire, which dies if it leaves the fire. (11.42)

There are trees which have spoken and have marched across a highway. (17.38)

To protect apples from insect attack, have a menstruating woman walk around the orchard naked. (17.38)

When wheat gets diseased, it turns into oats. (18.44)

Diamonds can be shattered with male goats' blood. (20.1)

If a pregnant woman wants a child with black eyes, she should eat a rat. (30.46)

If you've hit or thrown something at someone, and regret it, merely spit in the palm of the hand which did the deed, and all resentment on the part of the other will disappear. (28.7) (Before reporting this, Pliny says: "It is surprising, but easily tested. . . .")

Pliny meets his demise at Mt. Vesuvius

Pliny the Skeptic

Regarding astrology, he notes that people may be born the same moment but have entirely different fates. (7.50)

About the afterlife: We do not breathe differently from the other animals, and there are some which live longer than us, so why do we not assume they, too are immortal? And, if the soul does not have substance, how can it think, or hear, see or touch? Where are all the souls of the countless dead? . . . "These are fictions of childish absurdity. . . ." (7.56)

He quotes the Greek author Euanthes, who describes a werewolf. Pliny then adds: "It is really wonderful to what a length the credulity of the Greeks will go! There is no falsehood, if ever so barefaced, to which some of them cannot be found to bear testimony." (8.34)

Some say the reason no one has ever seen a vulture's nest is because they nest in the opposite hemisphere; but in fact it is because they nest high up in mountains. (10.7)

Regarding a bird called the *sangualis*, while some say it has not been seen in Rome since the time of Mucius, "for my part I think it much more likely that in the general slackness that prevails they have not been recognized." (10.8) (Pliny is warning here that when interest in knowledge wanes, false inferences are more common; a topical observation?)

He says "I know for a fact" that owls landing on roofs are not portents of evil. (10.16)

"A story is told about the mournful song of swans at their death—a false story as I judge on the strength of a certain number of experiences." (10.32)

While soothsayers claim the settling of a swarm of bees is an evil omen, a swarm settled in Drusus's camp when he had a victory at Arbalo. (11.18)

"And I think that the story about screech-owls, that they drop milk from their teats into the mouths of babies, is a fabrication." (11.95)

"For my part I am surprised that Aristotle not only believed but published his belief that our bodies contain premonitory signs of our career. . . ." (11.114)

Timaeus says that leaves fall from trees when the sun is in Scorpio because at that time of year a venom falls on them from out of the sky; "but then we may justly wonder why the

same influence is not operative against all these trees. Most trees shed their leaves in autumn, but some lose them later. . . ." (16.34)

When discussing Asclepiades, who Pliny considers a fraudulent doctor, he states that the knowledge of remedies is best acquired by personal examination and actual experience. (26.7)

He will not, he says, mention love-philtres or abortives, "unless it be by way of warning or denunciation, especially as I have utterly condemned all faith in such practices." (25.7)

"For my part I am surprised that Aristotle not only believed but published his belief that our bodies contain premonitory signs of our career. . . ."

The plant *vervain* is used by some for telling the future, "but it is the magicians that give utterance to such ridiculous follies. . . ." (25.59)

He calls statements Theophrastus has made about an aphrodisiac "fabulous," a plant which is supposed to allow a man to make love seventy times in a row—then Pliny notes (with regret?) that Theophrastus has failed to name the plant. (26.63)

With respect to the peony [plant], and the need to pull it up at night, and likelihood of being attacked by the woodpecker of Mars while doing so and of getting hemorrhoids: "I hold to be a fundamental lie, calculated to exaggerate the facts." (27.60)

"Shameless beyond belief is the treatment prescribed by very famous authorities" which suggests that human semen cures the scorpion sting. (28.13)

Examples of Pliny's disdain for magicians include: "Such is the clever cunning of the Magi in wrapping up their frauds..." (29.12) "But all these are nothing compared with a mixture that the lying Magi assert makes men invincible . . ." (29.19); "Here moreover we have quite the most blatant instance of effrontery on the part of the Magi..." (37.60)

He doubts that owl egg really helps grow hair, "Who in any case could have tried it, particularly on the hair?" (29.26)

Pliny the Uncertain

About snake charming . . . "insomuch as experience has not decided whether it is true or false..." (8.19)

He argues that air must be soluble in water, for fish respire as we do, and air is required for the senses of hearing and smell, which fish clearly possess. But then he adds: ". . . it is open to every person to form whatever opinion about these matters he pleases." (9.6)

About the opinion that sea-stars give off so much heat they scorch everything they come into contact with, (9.86) he says: "I cannot readily say by what experiments this has been ascertained, and I should consider a fact that there is daily opportunity of experiencing to be much more worth recording."

Regarding the phoenix he says "though perhaps it is fabulous. . . ." (10.2)

Regarding dreams: "Here an important topic invites us and one fully supplied with arguments on both side—whether there are certain cases of foreknowledge present in the mind during repose, and what causes them, or whether it is a matter of chance like most things." (10.98) (Here he seems to recognize the human need to assign meaning to random events.)

That eating rabbit makes you beautiful is just a play on words, "lepos" meaning graceful and "lepus" meaning a hare; "but [this is] so strong a belief that it must have some justification." (28.79)

Reading Pliny's work one can't help but remark his blatant inconsistency, on the one hand accepting patent absurdities while skeptically questioning others. To Stoics like Pliny nature was God, and one view is that though he might deny God omnipotence—God cannot kill himself, make mortals immortal, change the past, or make two times ten equal anything but twenty (*NH* 2.5)—Pliny was using these *mirabilia* as evidence of God's ability to overstep natural law, which the divinity was sometimes required to do in order to punish human hubris.

Beagon (1992) suggests that Roman explorers who were traveling beyond the boundaries of the empire toadied to the need of their readers by reporting as fact the most sensational anecdotes they heard in their travels. There is, she shows, a strong culture of *paradoxography* in the first and second centuries, an obsession with the strange and unusual, which would have tainted Pliny's primary sources.

Pliny dedicates his work to his friend Titus, son of the emperor Vespasian, to whom he was also a close confidante. Vespasian rose out of the middle class to become emperor, and may have needed all the *auctoritas* he could garner to convince the Roman public of his right to rule (Scott 1975.) There were said to be omens predicting Vespasian's emperorship; and though Pliny denigrates the ubiquitous belief in Fortune, skepticism of all omens and *mirabilia* may not have been politically wise. But perhaps Pliny is in being both credulist and skeptic merely covering his bases, appealing to as many readers as possible in order to increase subscription to his book.

Nearly two thousand years later, like Pliny we retain a neuroanatomy that is surprisingly adept at accepting both the latest science and oldest superstition. Newspapers commonly feature articles about the cloning of humans or photos made by the Hubble Space Telescope alongside daily horoscopes or a description of an apparition of the Virgin Mary or Christ. Not long ago a local paper featured an article on Jasmuheen, a "Breatharian" who claimed never to have to eat, reported as fact. Perhaps we ought to give Pliny the last word here: "Among all things, this alone is certain—that nothing is certain, and that there is nothing more proud or more wretched than man." (2.5)

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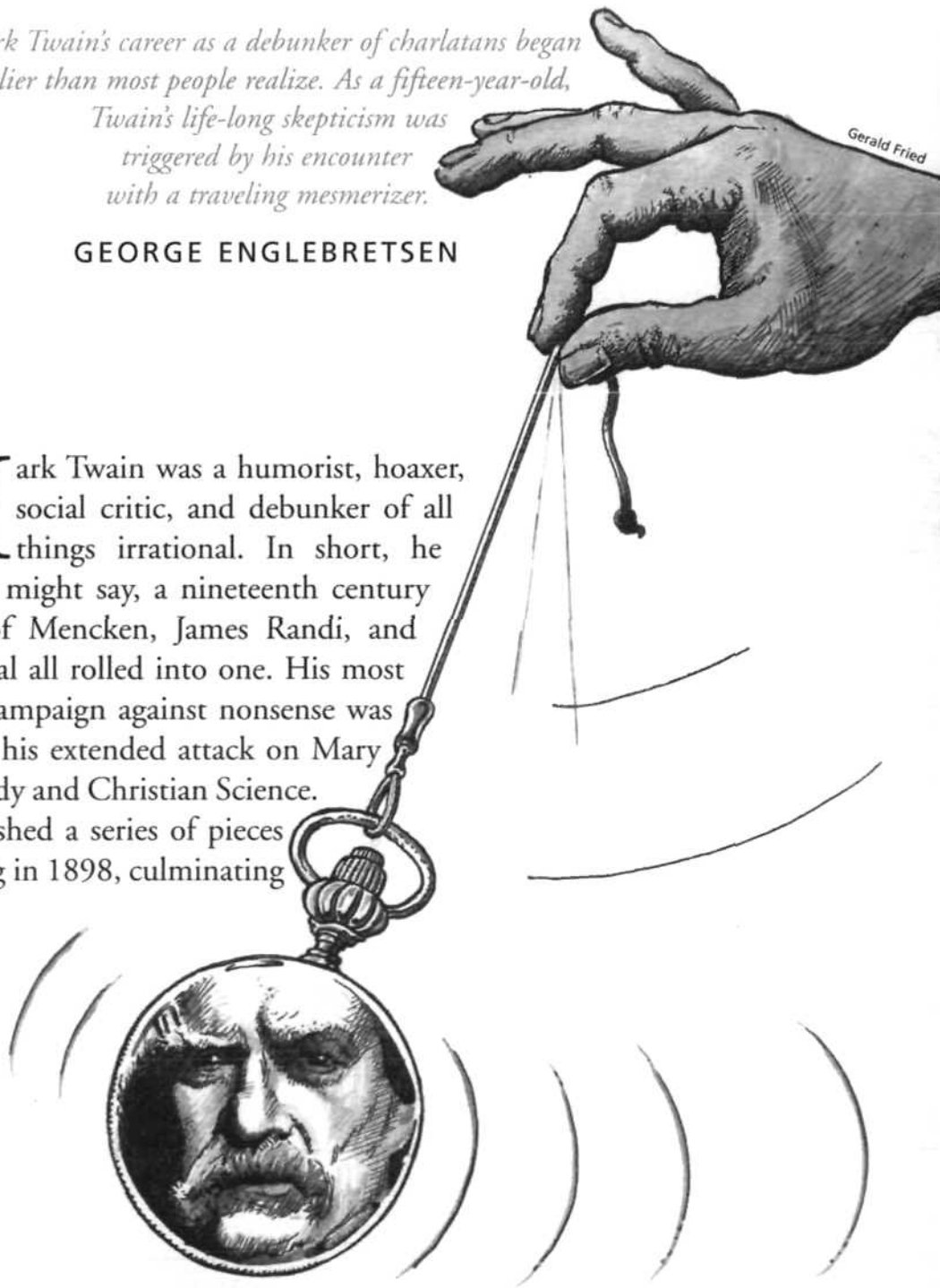
Unfazed: Mark Twain Debunks the Mesmerizer

Mark Twain's career as a debunker of charlatans began earlier than most people realize. As a fifteen-year-old, Twain's life-long skepticism was triggered by his encounter with a traveling mesmerizer.

GEORGE ENGLEBRETSEN



Mark Twain was a humorist, hoaxer, social critic, and debunker of all things irrational. In short, he was, one might say, a nineteenth century version of Mencken, James Randi, and Alan Sokal all rolled into one. His most famous campaign against nonsense was probably his extended attack on Mary Baker Eddy and Christian Science. He published a series of pieces beginning in 1898, culminating

in his book *Christian Science* in 1907. He called Eddy "the queen of frauds and hypocrites" and feared that the rising popularity of her new religion would give her so much power that the U.S. Congress itself would succumb. It took courage for Twain to take on Christian Science at that time. During the period in question she had acquired not only her own church but a publishing company, a college, and heaps of money and influence. Perhaps as a consequence Twain had difficulty publishing his book, which was rejected by Harper (infuriating Twain). Less well-known is Twain's debunking of Lorenzo Fowler, one of the deans of phrenology in the 1870s, though D.J. Lopez (2002) has recently done a superb job of drawing attention to that effort and, in so doing, revealing not only Twain's powers of analysis, critical eye, and wit, but his all-too-human failures as well. Twain, who was generally immune to the kinds of religious and pseudo-scientific quackery that beguiled many, was himself a model of gullibility when it came to get-rich-quick schemes.

Young Twain managed to have himself placed among the candidates for mesmerism on the stage for three consecutive evenings. He tells us that in spite of his eagerness to be taken under the spell, to become sleepy gazing into the mesmerizer's magic disk, nothing happened.

An even earlier debunking campaign of Twain's is even less well-known. In his encounter with mesmerism, Mark Twain revealed his Mencken-Randi-Sokal persona better than ever. The encounter took place about 1850, when Twain was a teenager, but he recounted it vividly in his autobiography. For two weeks in May a Mr. Simmons, the traveling "mesmerizer," astonished (and bilked) the citizens of Hannibal, Missouri. "Not many people attended the first night but next day they had so many wonders to tell that everybody's curiosity was fired and after that for a fortnight the magician had a prosperous times." (All quotes are from Neider 1959.)

Notice that Twain characterized him straightaway as a "magician." The teenage Twain's initial intention had nothing to do with debunking Simmons. "I was fourteen or fifteen years old, the age at which a boy is willing to endure all things, suffer all things short of death by fire, if thereby he may be conspicuous and show off before the public; and so, when I saw the 'subjects' perform their foolish antics on the platform and make the people laugh and shout and admire I had a burning desire to be a subject myself."

To that end the often fractious young Twain managed to have himself placed among the candidates for mesmerism on the stage for three consecutive evenings. He tells us that in spite of his eagerness to be taken under "the enchanter" Simmons's spell, to become sleepy gazing into the mesmerizer's magic disk, nothing happened. He had to sit there on stage enduring the humiliation of watching other subjects "scamper and jump" and be taken as heroes by the crowd. It particularly galled Twain that a relatively inarticulate man named Hicks, a local journeyman, had become a crowd favorite. But on the fourth night Twain could resist the temptation no longer. This time he pretended to be sleepy and began to nod. He followed all of Simmons's orders and suggestions and performed

> . . . all the customary marvels. But not in the customary way. I was cautious at first and watchful, being afraid the professor would discover that I was an imposter and drive me from the platform in disgrace; but as soon as I realized that I was not in danger, I set myself the task of terminating Hicks's usefulness as a subject and of usurping his place.
>
> It was a sufficiently easy task. Hicks was born honest, I without that incumbrance—so some people said. Hicks saw what he saw and reported accordingly, I saw more than was visible and added to it such details as could help. Hicks had no imagination; I had a double supply. He was born calm, I was born excited. No vision could start a rapture in him and he was constipated as to language, anyway; but if I saw a vision I emptied the dictionary onto it and lost the remnant of my mind into the bargain.
>
> At the end of my first half-hour Hicks was a thing of the past. . . . "Success to crime!". . . the magician soon found out that when it came to seeing visions of a stunning and marketable sort I could get along better without his help than *with it*.

As clearly illustrated here, a combination of boldness, imagination, and articulate expression are essential to the debunker. The absolute need for the first two of these is illustrated by Twain's response to one of the mesmerizer's more difficult challenges. Simmons would stand behind a subject and attempt to "drive a mental suggestion into" him.

> Inasmuch as I was an imposter I dreaded to have this test put upon me, for I knew the professor would be "willing" me to do something, and as I couldn't know what it was, I should be exposed and denounced. However, when my time came, I took my chance. I perceived by the tense and expectant faces of the people that Simmons was behind me willing me with all his might. I tried my best to imagine what he wanted but nothing suggested itself.

Twain feared exposure of his (not Simmons's) fraud was at hand. But then, eager to "go out most sensationally and spectacularly," his fertile imagination offered an idea that would require fearless audacity.

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There was a rusty and empty old revolver lying on the table among the "properties" employed in the performances. On May Day two or three weeks before there had been a celebration by the schools and I had had a quarrel with a big boy who was the school bully and I had not come out of it with credit. That boy was now seated in the middle of the house, halfway down the main aisle. I crept stealthily and impressively toward the table, with a dark and murderous scowl on my face, copied from a popular romance, seized the revolver suddenly, flourished it, shouted the bully's name, jumped off the platform and made a rush for him and chased him out of the house before the paralyzed people could interfere to save him.

There was a storm of applause, and the magician, addressing the house, said, most impressively—"That you may know how really remarkable this is and how wonderfully developed a subject we have in this boy, I assure you that without a single spoken word to guide him he has carried out what I mentally commanded him to do, to the minutest detail. I could have stopped him at a moment in his vengeful career by a mere exertion of my will, therefore the poor fellow who has escaped was at no time in danger."

So I was not in disgrace. I returned to the platform a hero and happier than I have ever been in this world since. As regards mental suggestion, my fears of it were gone. I judged that in case I failed to guess what the professor might be willing me to do, I could count on putting up something that would answer just as well. I was right, exhibitions of unspoken suggestion became a favorite with the public. Whenever I perceived that I was being willed to do something I got up and did something—anything that occurred to me—and the magician, not being a fool, always ratified it.

After that performance Twain became Simmons's "king bee" and sole subject for the remainder of the two weeks. Notice that what Twain had realized was that it was not the mesmerizer who is the active partner but the subject. The latter performs and the former merely "ratifies" it. Wasn't it Randi who defined hypnotism as "two people lying to each other"?

Not all of the mesmerizer's act was without some peril for the subject. Having put a subject under his spell, Simmons would invite audience members to come on stage and stick pins into the supposedly insensate victim. Naturally most subjects would wince, requiring Simmons to make elaborate excuses. Twain was resolved to maintain his status as a "wonderfully developed" subject.

> . . . Hicks "wasn't sufficiently under the influence." But I didn't wince; I only suffered and shed tears on the inside. The miseries that a conceited boy will endure to keep up his "reputation"! . . . That professor ought to have protected me and I often hoped he would, when the tests were unusually severe, but he didn't. It may be that he was deceived as well as the others, though I did not believe it nor think it possible. Those were dear good people but they must have carried simplicity and credulity to the limit. They would stick a pin in my arm and bear on it until they drove it a third of its length in, and then be lost in wonder that by a mere exercise of will power the professor could turn my arm to iron and make it insensible to pain. Whereas it was not insensible at all; I was suffering agonies of pain.

Twain of course did not endure this pain and perform his public antics in order to debunk the mesmerizer. His debunking was merely an unintended ancillary to his campaign to become a local hero and impress the girls. But he was genuinely and rightly skeptical throughout. And he was not alone in his skepticism—at least during the early stages of his career as the mesmerizer's puppet: "Up to that time a dozen wise old heads, the intellectual aristocracy of the town, had held out as implacable unbelievers. . . . That handful of overwise old gentlemen kept on shaking their heads all the first week saying they had seen no marvels there that could not have been produced by collusion; and they were pretty vain of their unbelief too and liked to show it and air it and be superior to the ignorant and the gullible."

They would stick a pin in my arm and bear on it until they drove it a third of its length in, and then be lost in wonder that by a mere exercise of will power the professor could turn my arm to iron and make it insensible to pain. Whereas it was not insensible at all; I was suffering agonies of pain.

But his performance, as he somewhat ruefully admitted a half-century later, conquered even them. Among that skeptical clique was a Dr. Peake, the hardest nut to crack, the last to be conquered by Twain. As it happened, three or four years earlier Twain had been in the parlor of his home when a conversation transpired between Dr. Peake and some others. That group, mostly former Virginians, were unaware of the boy's presence. The conversations concerned the burning of the Richmond theater thirty-six years earlier. Dr. Peake then spoke of his old home in Richmond. In describing it Peake mentioned that a hole in the wall near the front entrance had been made by a British cannonball during the Revolutionary War. The boy was impressed enough by this ever-so tangential touch of history that he preserved these elements of the conversation in his memory. Now, three years later, on stage with Simmons, Twain was being prodded by the mesmerizer to conjure up a vision. Just then Dr. Peake entered the theater.

> Without suspecting it, Dr. Peake, by entering the place, had reminded me of the talk of three years before. He had also furnished me capital and was become my confederate, an accomplice in my frauds. I began on a vision, a vague and dim one (that was part of the game at the beginning of a vision; it isn't best to see it too clearly at first, it might look as if you had come loaded with it). The vision developed by degrees and gathered swing, momentum, energy. It was the Richmond fire. Dr. Peake was cold at first and his fine face had a trace of polite scorn in it; but when he began to recognize that fire, that expression changed and his eyes began to light up. As soon as I saw that, I threw the valves wide open and turned on all the steam and gave those people a supper of fire and horrors that was calculated to last them one while! They couldn't gasp when I got through—

they were petrified. Dr. Peake had risen and was standing—and breathing hard. He said, in a great voice: "My doubts are ended. No collusion could produce that miracle. It was totally impossible for him to know those details, yet he has described them with the clarity of an eyewitness—and with what unassailable truthfulness God knows I know!"

I saved the colonial mansion for the last night and solidified and perpetuated Dr. Peake's conversion with the cannon-ball hole. He explained to the house that I could never have heard of that small detail, which differentiated this mansion from all other Virginian mansions and perfectly identified it, therefore the fact stood proven that I had *seen* it in my vision. Lawks!

So, Simmons, the mesmerizer, with the help of the fraudulent young Twain, had fooled everyone in town. Eventually (in just a few weeks) Twain grew weary of his status as a local hero, and as it wore away he had only the guilty conscience to remind him of his sham triumph. As most readers of this journal know, few things are more difficult than convincing the gulled that they have been hoaxed—even when the one revealing the scam is the perpetrator himself. Conan Doyle wouldn't accept Houdini's repeated insistence that he was just a magician without occult powers. Some of the editors of *Social Text* continued to take Sokal's hoax essay at face value even after he had revealed his dupery. Twain wrote, "How easy it is to make people believe a lie and how hard it is to undo that work again!" Thirty-five years after his encounter with the mesmerizer Twain was intent on confessing his lies and charlatanery to his mother. He failed. She simply refused to believe him. She said she had heard what Dr. Peake had said in the theater and believed him—after all, Twain had been a mere boy at the time! She calmly refused to believe his protestation that when stuck with pins he had been in real pain, replying that he had simply forgotten there was no pain. She went to her grave convinced that no child could ever fashion such a hoax.

The entire episode involving his collusion with the mesmerizer, his deluding of Dr. Peake and the other town skeptics, and his failed attempt to come clean taught Twain some valuable lessons, which he applied many times over for the remainder of his life. Near the end of his life he concluded:

> It is curious. When the magician's engagement closed there was but one person in the village who did not believe in mesmerism and I was the one. All the others were converted but I was to remain an implacable and unpersuadable disbeliever in mesmerism and hypnotism for close upon fifty years. This was because I never would examine them, in after life. I couldn't. The subject revolted me. Perhaps it brought back to me a passage in my life which for pride's sake I wished to forget; though I thought, or persuaded myself I thought, I should never come across a "proof" which wasn't thin and cheap and probably had a fraud like me behind it.

When it came to bunkum (as long as it offered no quick financial rewards) Twain, at the tender age of only fifteen, had become fraud-proofed.

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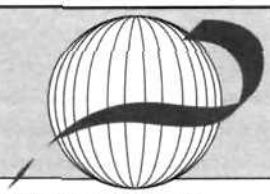

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A Maddeningly Gullible Oxford Companion

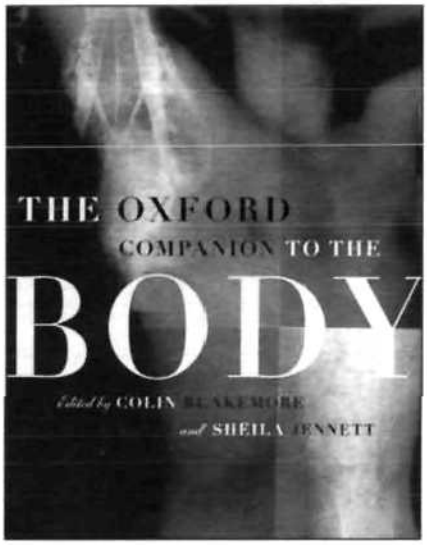
ROBERT H. CORMACK, ROBERT HOLSON, and MARK C. SAMUELS

The Oxford Companion to the Body. Colin Blakemore (editor) Sheila Jennett (editor). Oxford University Press Inc., New York, 2002. ISBN 0-19-852403-X. 752 pp. Hardcover, $75.

For the skeptical reader, *The Oxford Companion to the Body* is maddening. Why? There is a wealth of solid information about the human body, including valuable medical data. The topics covered are fascinating (from Achilles' heel to pubic wigs to zombies). Beautiful and useful illustrations, some full-page and colored, are found throughout. Topics are nicely arranged alphabetically. There are some very good critiques of questionable ideas (e.g., cures for baldness and Charles Atlas ads). One can find fair and even-handed articles on controversial issues (e.g., near-death experiences and ectoplasm). The editors are well known and highly respected and the book has received good reviews. More than 150 contributors provide a wealth of knowledge, opinions, and advice. So how can the book be maddening? It is because of the gullible and uncritical treatment of many extraordinary and controversial claims.

Let us begin with the entry on clairvoyance that states, "On some level everyone possesses the ability for prophetic sight: . . . a man decides not to board a plane only to learn later that his flight has crashed. Often clairvoyant abilities surface during or following times of heightened stress, such as serious illness or accident, extreme physical danger, or near death experiences." The claim is made that some people have developed the ability and can control it to some degree. Nostradamus and other "seers" are mentioned without a hint of skepticism.

Turning next to palmistry, this topic gets a substantial entry complete with a large diagram showing the main



lines and features of the palm. While mentioning a couple of criticisms of palm reading, the article is essentially uncritical. The second-to-last paragraph reads, "Today, in a world where people are alienated in an increasingly technological environment, more and more are rediscovering the cultural importance of hand reading for providing inner meaning to their lives. At a time when science is increasingly investigating the interrelationship of consciousness with matter, the study of hand reading could significantly enrich scientific investigation."

Under the subject heading *moon*, we read that murder, suicide, madness, and other mental disorders have been thought to be driven by lunar cycles. Though this entry states that this topic has been scientifically investigated, no results are revealed, and it never says that studies find absolutely no evidence for such lunar influences.

Among treatments we find an entry on chiropractic, with a highly favorable review. We quote: "Chiropractic treatment is suitable for people of any age, including babies, pregnant women, and the elderly and for a wide range of conditions, including back pain; sciatica; tension headaches; migraine; neck, shoulder and arm pain; sports injuries; repetitive strain injury; and many other joint and muscle disorders." Readers of SI are aware that chiropractic massage and manipulation can provide some relief for pain in some of these areas, but they are also aware that such manipulations can be dangerous, especially when the neck is involved. Also in this entry we find, "Patients may also be treated for a range of other conditions such as asthma, indigestion and the irritable bowel syndrome, palpitations, high

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blood pressure, period pains, infantile colic, and other conditions which may not be directly related to the spine or joints." No evidence whatsoever is given in support of these claims. There is no mention of the elusive subluxations, very little detail regarding the theory of chiropractic, and no discussion of scientific research concerning the effectiveness of treatment.

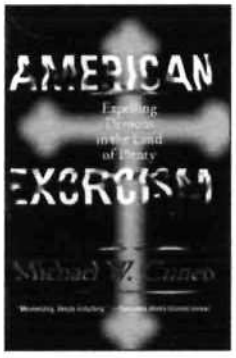
The entry on reflexology is totally gullible, lacking even a trace of critical thinking. The accompanying diagram shows the areas on the soles of the feet that are supposedly in some way related to the various body organs. Reflexology is described as a form of complementary medicine, suitable for people of both sexes and all ages. The claim is made that "a wide range of disorders can be helped by reflexology, including backache, digestive disorders, hormonal imbalances, and circulatory problems." There is no mention of any research—or the need for any.

Other entries, such as those on extrasensory perception, meteopathy, and the Alexander technique, are also egregiously uncritical. Still other topics, including acupuncture, hypnosis, and lobotomy, could have benefited from a more skeptical approach.

Many of the topics are cast almost entirely in a classical mold. Beginning with what Roman and Greek authorities and mythology had to say about the topic, the authors go on to include Biblical ideas and opinions, and curiously often fetch up somewhere in the Middle Ages or the nineteenth century, hence ignoring the bulk of modern scientific contributions to the topic! Of greater concern to skeptics is that many of the articles that include classical mythology also wax eloquent about Freudian attitudes to subjects as diverse as castration, eroticism, hymen, hysteria, libido, and weaning. This is certainly informative, but many entries that include Freudian beliefs seem to accept these as at least provisionally correct, a curious point of view given the definitive debunking of much of Freudian theory by modern neurological and behavioral sciences.

Many entries on controversial topics show healthy skepticism. The entry on herbal medicine, for example, clearly explains the dangers of unquestioned use of herbs and the discussion of homeopathy uncompromisingly exposes the nonsense of the theory. The entry on out-of-body experiences makes reference to neurological events produced by drugs, electrical stimulation, or other causes, and while sympathetic to historical and contemporary accounts, is clearly in the skeptical camp. There is a good entry on pedophilia that avoids the public panic regarding satanic child abuse cults and the alleged horrible consequences while giving a good critical account of the extent of the problem.

While we would like to recommend the book for its solid articles and for its wide coverage of novel and enticing topics, we cannot do so without serious caveats. There is just too much misinformation and maddeningly little critical analysis of important issues.



A Sociologist's Journey into the American Heart of Darkness

KEVIN CHRISTOPHER

American Exorcism: Expelling Demons in the Land of Plenty. By Michael Cuneo. Doubleday, New York, 2001. ISBN: 0-385-50176-5. Hardcover, $24.95.

For skeptics and most other people, the word *exorcism* immediately evokes images of Catholic priests, holy water, and bizarre, other-worldly behavior. Most of the popular literature and media coverage focus exclusively on this Hollywood version of modern exorcism, a vicarious adventure into the dangerous side of religious experience. *American Exorcism* takes us beyond such cliché into the real believing subculture and the broader phenomena of demonology and ritual.

Author Michael Cuneo—who teaches anthropology and sociology at Fordham University in New York City—delves deeply into modern American beliefs in demon possession and the various practices of demon expulsion. Although his opening chapters focus mostly on exorcism as a Roman Catholic ritual, Cuneo is quick to disabuse readers of the common assumption that the task of expelling demons is limited to priests. His later chapters closely examine the history and current practice of Middle-America exorcism—the deliverance ministries of Baptist, Charismatic, and Pentecostal churches and deliverance groups. Cuneo is also careful to make sure the reader understands that although Protestant deliverance ministry and the resurgent Catholic rite of exorcism are essentially grass-roots practices, the renewed popular belief can be credited almost entirely to Hollywood.

"This conjuncture of commercialism and religious ritual, of profits and piety, should come as no surprise," Cuneo writes. "Over the course of the twentieth century the popular cultural industry, with its endless run of movies, books, and digital delights, has gained a pervasive influence over the national consciousness. It has become part of the very air that Americans breathe and, as such, it has

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attained an enormous capacity for shaping everyday beliefs and behaviors. . . . When Hollywood and its allies put out the Word, somebody's guaranteed to be listening" (p. 50). Cuneo repeatedly reminds the reader of the role of American media in the resurgence of the belief in demonic possession. Only the most willfully naïve reader could overlook the role of motion pictures, TV talk shows, book publishers, and the insatiable appetite for publicity among exorcism authors and self-styled "researchers" after reading Cuneo's perceptive accounts of the rise of demonic awareness in the land of plenty.

American Exorcism is a remarkable synthesis of interviews, historical research, media studies, and hands-on field research. He interviews the various players in the modern exorcism revival. He offers compelling assessments of desires and motives of the exorcists and the possessed—tempered by objective evidence and judgment. He shows forbearance and sympathy to those who participate in exorcism and deliverance ministry, but he is also skeptical and frank.

Cuneo begins his book with a poignant and timely lamentation of the modern Catholic priesthood: "The past three decades haven't been particularly kind to the Catholic priesthood. One would be hard-pressed to find another profession that has fallen harder or further from grace in so short a period of time." He notes the dramatic thinning of the ranks beginning in the 1960s and 70s, the frantic scramble to find relevance in the modern world, and the endless sexual scandals. The image of the Catholic priest, writes Cuneo, "has more often been the priest as pious fraud, the priest as philanderer, the priest as yesterday's man—equivocating, beleaguered, and thoroughly redundant."

In one exceptional area, however, the priest remains a cultural hero. "That area," writes Cuneo, "is exorcism, and it is the priest-as-exorcist that has somehow managed, in defiance of all odds, to retain a heroic grip on the popular American imagination." Modern Catholic liberals had hoped that exorcism would be relegated to Church history along with the other medieval trappings and customs. What such Catholics never anticipated, according to Cuneo, was the modern media's role in breathing new life into the ancient rite of exorcism.

In the first four chapters Cuneo deftly sketches out the sundry sources of the exorcism renewal. He begins with the well-know pop *Ursprung*: William Peter Blatty's 1971 novel, *The Exorcist*, and the 1973 film of the same title that it inspired. He characterizes Blatty's work as massive structure of fantasy resting on a flimsy foundation of a priest's 1949 diary account of the possession of a young boy in Mount Ranier, Maryland.

Cuneo then introduces the reader to fascinating and seldom-cited sources: ex-Jesuit priest Malachi Martin, author of the 1976 book *Hostage to the Devil*; paranormal authors Ed and Lorraine Warren, and, surprisingly, the grandfather of pop-psychology and self-help, *The Road Less Traveled* author Scott M. Peck.

Malachi Martin pronounced his final vows as a Jesuit in 1960 and took a position at the Vatican's Pontifical Biblical Institute. He abruptly left his post in 1964 and the Society of Jesus in 1965, after being granted a provisional release by Pope Paul VI. Nearly forty years later, there are conflicting accounts of why Martin, such a promising scholar, left everything behind. Cuneo writes:

> According to the most popular account (which is the one usually favored by Martin himself), he felt morally compelled to leave the priesthood in protest over the new, decidedly more liberal, direction the Catholic Church was taking as a result of the Second Vatican Council. Unfortunately this stricken-soldier-of-conscience version of events hasn't always squared with the facts. Far from being a tormented conservative during his years in Rome, Martin was actually a theological liberal, and while the council was in full swing, he was closely (and publicly) aligned with such leading liberal lights as Monsignor George Higgins and the eminent American Jesuit John Courtney Murray.

Digging further, Cuneo finds "fairly reliable evidence" that Martin threw away his religious career in the wake of "romantic intrigue"—an affair that occurred in 1964 while he taught theology part-time at Loyola University of Chicago's Rome Center.

If readers are to believe Martin, Satan was hard at work in New York City in the 1970s. He claims that the possessions and exorcisms described in *Hostage* are true accounts. Cuneo checks with Catholic experts, including Franciscan Father Benedict Groeschel, the expert Catholic officials turned to in the 1970s and 1980s when they were confronted with the "inexplicable." Groeschel was not aware of anything on the scale Martin portrays. Furthermore Groeschel and others insist that for the mainstream Catholic Church, exorcism was the last resort; earthly explanations were preferred and pursued first.

In his 1983 book *People of the Lie: The Hope for Healing Human Evil*, Peck is unequivocal about his belief in demonic possession and remains a staunch believer in supernatural demonic possession to this day. Many in the charismatic deliverance movement see *People of the Lie* as a mainstream validation of their beliefs. When Cuneo asked Peck in a phone interview whether he thought that exorcism would someday become the serious subject of scientific investigation, Peck expresses doubt for absolutely shocking reasons. He is not pessimistic due to the fact that there is no credible evidence for the reality of demonic possession. Instead he asserts—in the tradition of a dime-a-dozen pseudoscientist rather than a trained psychiatrist—that the "country's intellectual and religious elites," are to blame, including "the leadership of the American Catholic Church," who "have seemed determined to keep the door shut."

In Part III: "Charismatic Deliverance Ministry," Cuneo sets Catholicism aside and begins with an account of a fifteen-minute exorcism of a young man named Paul. Paul, plagued by years of aberrant

sexual fantasies and violent feelings, had driven 200 miles to Kansas City to obtain an exorcism from Protestant deliverance ministers Ellen and Felix. The rite Cuneo describes is not an all-night vigil of sweating priests dodging projectile vomit. It involved a prayer, a recitation of Psalm 37 and Luke 10:17–19, some speaking in tongues, a prayer of repentance followed by a prayer of exorcism appealing to the power of Jesus Christ, repeated six times for each demon within Paul. Cuneo remarks that "whole business" was "orderly and efficient." He also includes a postscript stating that six months later, Paul claimed that he had not experienced any of his old symptoms and "for the first time in his life felt truly at peace with himself" (81).

Cuneo then recounts the history of the rise of modern Pentecostal and Charismatic deliverance ministry. Although it dates as far back as the very beginning of Pentecostalism on Asuza Street in Los Angeles in 1906, the modern revival can be traced to the 1960s. At that time, deliverance ministry was a sporadic guerrilla movement, led by mavericks like Disciples of Christ minister Don Basham, Pentecostal minister Derek Prince, and, among Charismatic Catholics, a Dominican priest named Francis MacNutt.

Cuneo's historical account of the deliverance ministry from the 1960s through the 1980s is filled with quotes out of his interviews, providing an intense human portrait of what both leaders and followers in the movement felt and the role deliverance ministry played in their lives. Readers will also find a continuing interplay between Catholic and Protestant brands of exorcism. For instance, Malachi Martin's Catholic pulp thriller *Hostage to the Devil* was a great influence on some of the modern Charismatic deliverance ministers Cuneo spoke with, and many Catholics turned to charismatics in their quest to infuse their faith with renewed fervor.

Cuneo spends time at the Hegewisch Baptist Church in Indiana with Pastor Mike Theirer, "the hardest working exorcist in America." His account stands in complete contrast to the more private and peaceful affair described above. Theirer's deliverance sessions are auditorium affairs. "Throughout the auditorium, demoniacs are paired off with exorcism ministers," writes Cuneo, who himself rushed help wrestle down a particularly violent demoniac to prevent him from further battering Pastor Mike. People belched and (literally) vomited their demons out in an intense charismatic spectacle.

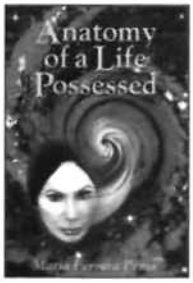
Cuneo's close involvement with congregations practicing deliverance ministry gives him a compelling inside look and first-hand perspective on the conformist (sometimes cult-like) pressures exerted on members regarding belief and practice.

> Considering also the distinctive style of so many charismatic prayer groups: the ecstatic worship the gushing emotionalism, the breathless solidarity. All of this gave rise, as often as not, to an atmosphere of suggestibility, of hothouse conformity. Individual charismatics, even relative newcomers, easily surmised what was expected of them in the way of belief and conduct, and there was no shortage of cues to help them along. Imagine a fairly new recruit to the renewal movement, impressionable, eager to please, seeing two or three, or fifteen or sixteen spiritual brethren writhing and moaning in demon-induced torment. And then seeing the performance repeated time and again. It would take an iron act of will, arguably, for such a person not to go along for the ride.

Cuneo describes how he himself was confronted by an overly zealous charismatic convinced that he was possessed at a 1997 symposium on deliverance. He also describes interview accounts of fascistic group leaders who quashed dissenters by attributing their complaints to demons of willfulness and condemning them to corrective exorcisms. He stresses, however, that such abuses are the exception rather than the rule.

Michael Cuneo's conclusions on the actual existence of demons and the use of deliverance ministry and exorcism will almost certainly disappoint many SKEPTICAL INQUIRER readers who feel that the throat of patently unscientific nonsense should be slit wide open. Cuneo reserves judgment on many matters for which skeptics will see a clear verdict. After sitting in on fifty exorcisms, he is unequivocal about the fact that he saw nothing supernatural—certainly nothing out of *The Exorcist* or Malachi Martin's salacious pulp-religion paperbacks. However, he remains equivocal about the possibility that demons exist. While his views on the efficacy of exorcism are tempered by documented tragedies of exorcists inadvertently killing their hapless subjects, Cuneo, who conducted follow-up interviews of people whose exorcism he had observed, apparently accepts that exorcism have been a useful "therapy" for some.

Cuneo does emphasize one conclusion that all skeptics will gladly embrace. The Holy Army of priests, ministers, and laity who do battle with demons vying against God for the souls of men itself benefits from the power of one subtle creature which unquestionably influences the hearts and opinions of millions: American mass media. Without Hollywood, ABC, or Malachi Martin's publisher, the exorcism business would never have gotten off the ground. While Cuneo may in some cases be slow to condemn what is scientifically damnable, I believe that no skeptic's library on occult or supernatural claims would be complete without *American Exorcist*. Cuneo has done quality research on all level and from many angles. He opens the door for readers into a strange but amazing world, where people fervently believe that Satan and his minions are at work in a struggle that is simultaneously personal and cosmic. He also does an excellent job tracking the media's role in popular belief, and he is refreshingly scathing in pointing out those who see religious beliefs as a means to pop fame.



A Personal Mythology

JOSEPH P. SZIMHART

Anatomy of a Life Possessed. By Maria Ferrara Pema. Winner Episode Press, P.O. Box 1530, New York, NY 10021-0093, 2002. ISBN 0-9719221-5-2. 342 pp. Paperback, $19.95.

Maria Ferrara Pema, born in 1933 and raised in Poland, believes that for decades a Catholic monk telepathically and hypnotically possessed her.

The monk, a "Friar G.," is a stigmatic (who bleeds with the wounds of Jesus) with a cult following in Italy. Friar G. knew Padre Pio, the newly canonized saint, and apparently "inherited" Pio's stigmatic condition. *Anatomy of a Life Possessed* is the author's autobiographical testament about her origins, self-proclaimed possession experience, struggle to maintain her sanity, and reactionary stance against the Roman Catholic Church. Pema begins with her origins in Poland where she was raised in privileged circumstances with her twin brother. Stalinism and communism were her first belief systems. At age sixteen she became an accomplished ballet dancer in Warsaw and later pursued an acting career in Italy. Her father was a Tibetan aristocrat and physician with Buddhist principles. He was at one time a doctor to the Russian Czar and his family when Rasputin was on the scene. Pema describes her mother as an elegant, overbearing woman who was more concerned with appearances than with nurturing her children.

As a young actress Pema worked in Fellini's *La Dolce Vita* and later married a famous entertainment lawyer, Max, who was thirty years her elder. If you are a Fellini fan you will like some of the author's insights into this innovative filmmaker. During this period, the proverbial "sixties," Pema hung out with the hip elite, experimented with drugs, and sought contact with prominent gurus including the Maharishi Mahesh Yogi (whose Transcendental Meditation cult attracted many celebrities worldwide). She also turned to Catholicism and various Christian sects at this time in her search for truth.

Most of Pema's story is about what happened after she met Friar G., who she never names formally. Upon meeting Friar G. at his church, Pema felt a palpable connection with his "energy," and instantly she received telepathic messages indicating that the monk would use Pema for a miracle. A paralyzed man was coming to Friar G. for healing but without success. Pema reports that Friar G. entranced her to use her body as a vehicle to heal the paralytic man. According to Pema, Friar G. needed a bona fide miracle to achieve recognition as a living saint. Pema began to feel the paralysis as she felt Friar G. directing her to nod her head back and forth in a motion that would somehow trigger the spine of the paralytic to heal, as if by sympathetic magic. We have no idea if Friar G. ever knew anything about Pema's irrational compliance. She does report that, in a rare personal talk with the monk, Friar G. urged her to see a psychiatrist. Many others in her life told her to do the same. Pema insists throughout her story that she was possessed, not mentally ill. She denies specifically and elaborately on page 105 that she had manifestations of schizophrenia.

Her possession eventually strained her marriage to the point where she lived apart from her husband and later moved to New York. Still Friar G. telepathically managed to influence Pema across the Atlantic Ocean. He causes her to engage in a sexual relationship with a younger man and continues to use her to sympathetically heal the paralytic. Pema suffers bouts of immobility and pain. At one stage she goes to see Gurumayi at her South Fallsburg, New York, ashram. While there Pema gets no relief and reports that this guru, a protégé of the controversial Swami Mukatananda, who died in 1982, is a paranoid and manipulative cult leader.

By the time Pema writes this book, she tells us she manages to stay stable or "unpossessed" with the help of "medicines," but she does not specify what these are. In Part 2 of her book, fully two-thirds of the text, Pema expands on her "letter to the Pope" in which she complains about Friar G.'s use of "mind control" on her. After consulting some books critical of church dogma and tradition, Pema rants on and on about how the Holy See managed to hide the truth about the real Jesus. In her view, Jesus was also possessed, as were most saints including Padre Pio. Pema utilizes published criticism about Pio in her denunciation of the Church that she says colludes to blind the faithful to the truth. On page 139 Pema cites Marija Gimbutas and other sources who claim that the Church executed eight or nine million women during the "witch hunts" of the fifteenth to the eighteenth centuries (an unsupported exaggeration, as research indicates less than one hundred thousand men and women were executed). Of course, Pema, who aligns with many New Age writers, neglects to mention criticism of Gimbutas, whose circuitous logic does not convince nonfeminist scholars in her field.

Part 2 also contains the writer's speculation about cosmic reality and the meaning of life. In a chapter titled "The Physiology of Manipulation," Pema attempts to explain in medical terms how her possession worked: ". . . my frequent outbursts and lack of any sense of shame were because my hypothalamus was thrown out of balance. I was forced to surrender control over my actions. Because it exerts such influence over the autonomic nervous system, the hypothalamus basically serves as the higher nervous center governing the lower. By stimulating the lower, Friar G. was able to make it prevail

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over the higher, controlling center." To me this rationalization parallels the theosophical speculation of New Age favorites like Rudolf Steiner, not the medical knowledge of science.

Oddly, Pema attempts to educate the reader about the dangers of cults and mind control, possession, and religion. Her quest for the big answer leads her to accept Confucianism and nonreligious Buddhism as well as secular humanism. The latter in her mind is exemplified in the work of Paul Kurtz, a skeptic and founder of *Free Inquiry* magazine. Ironically she finds Kurtz's atheistic philosophy to be the bedrock of reality, but misses completely that Kurtz the skeptic would never support her belief in telepathic possession. Pema expounds on quantum theory and recites the New Age belief that modern physics has proved that the brain, being of the same stuff as the universe, can affect the physical and social environment through thought alone. This also explains why Pema holds the bizarre notion that mind control is accomplished through telepathic thought transference. On page 273 she states, "We already know that our cells make very good transmitters and receptors; we can send our thoughts and wills to influence people far away."

Pema's intent in publishing her story is mentioned on the back page: "The author plans to create a nonprofit organization whose mission is to protect innocent people, particularly children, from the dangers of religious cults by proposing to create new legislation."

This book fails as a didactic tool, but it does present the personal mythology of a woman bent on reconstructing reality to sustain her denial of a mental illness. □

NEW BOOK

Listing does not preclude future review.

The Blank Slate: The Modern Denial of Human Nature. Steven Pinker. Viking, 2002, ISBN 0-670-03151-8. 509 pp. $27.95, hardcover. A steadfast defense by a prominent evolutionary psychologist of the middle-ground position—still surprisingly controversial for reasons having nothing to do with the science—that a complex interplay of genes and environment determines human behavior. Says Pinker: "My goal in this book is not to argue that genes are everything and culture is nothing—no one believes that—but to explore why the extreme position (that culture is everything) is so often seen as moderate, and the moderate position is seen as extreme." He describes how many intellectuals have used three linked dogmas to deny the existence of human nature: the Blank Slate (the mind has no innate traits), the Noble Savage (people are born good and corrupted by society), and the Ghost in the Machine (we have souls that make choices free from biology). He attempts to bring rationality into these debates by showing that equality, progress, responsibility, and purpose have nothing to fear from discoveries about a rich and complex human nature.

—*Kendrick Frazier*

SCIENCE BEST SELLERS

Top Ten Best Sellers in **New York**

1 ***From Conception to Birth: A Life Unfolds***
Alexander Tsiaras
Doubleday

2 ***A Mind at a Time***
Mel Levine
Simon & Schuster

3 ***Fast Food Nation: The Dark Side of the All-American Meal***
Eric Schlosser
Houghton Mifflin

4 ***The Demon in the Freezer: A True Story***
Richard Preston
Random House

5 ***Dominion***
Matthew Scully
St. Martin's Press

6 ***Guns, Germs, and Steel: The Fates of Human Societies***
Jared Diamond
W.W. Norton and Co.

7 ***Merriam-Webster's Collegiate Dictionary***
Merriam-Webster, Inc.

8 ***Cradle to Cradle***
William McDonough, Michael Braungart
North Point Press

9 ***Remarkable Trees of the World***
Thomas Pakenham
W.W. Norton & Company

10 ***The Founding Fish***
John A. McPhee
Farrar, Strauss & Giroux

By arrangement with Amazon.com, October 2002.

The ABC-ville Horror

KEVIN CHRISTOPHER

The October 31, 2002, edition of ABC's *Primetime Thursday* was standard fare in the media's obligatory Halloween hype of the paranormal. The only exception this Halloween was that CSICOP and the SKEPTICAL INQUIRER staff were actually looking forward to this *Primetime* program: Senior Research Fellow Joe Nickell had been interviewed at the ABC studios in New York City less than two weeks earlier for segments on *The Amityville Horror* and TV mediums. [See Nickell's column in this issue, page 13 —Eds.] Watching the final product was a bittersweet affair. The final segment, on mediums, titled "Voices from Beyond"—in which Nickell never appeared—featured magician Ian Rowland, who capably demonstrated cold reading. Rowland convinced a small group that he was in contact with dead loved ones, later revealing that his powers rested on a worldly technique instead of otherworldly messages.

The first segment, however, which revisited *The Amityville Horror* case, thoroughly negated any productive skepticism achieved in the segment on mediums. Host Diane Sawyer introduced the Amityville story with "And tonight, for Halloween, we investigate the facts behind one of the most enduring ghost stories of our time: the Amityville Horror." They investigated facts; the problem was how few of the facts were actually reported to viewers and how the obvious conclusions to be drawn from them were blatantly ignored.

During the segment, Elizabeth Vargas sketched the series of events behind the tale of horror at 112 Ocean Avenue in Amityville, New York, including how Ronnie ("Butch") DeFeo, Jr., slaughtered his family in that home in November 1974, how George and Kathy Lutz and their family moved into the house, only to leave twenty-eight days later, claiming they were terrorized by supernatural horrors; and how the Lutzes soon met up with DeFeo's attorney William Weber, who himself was eager to write a bestseller about one of the most heinous crimes ever committed on Long Island. Weber teamed up with the Lutzes to put the story together.

Early on, Elizabeth Vargas interviewed reporter Laura Didio and "psychic researcher" Lorraine Warren about the overnight séance and ghost hunt conducted at the Lutzes' home. The account of that night includes a group séance in which one psychic gets visibly upset, a series of time lapse photos—one of which shows the face of a little boy peering from one of the bedrooms—and a room which Warren found disturbing.

George Lutz appears throughout the segment describing slime, sleep paralysis, and a levitating Kathy Lutz, among other things.

The psychic claptrap and Lutz's unbelievable accounts are not the worst failings of *Primetime*'s Amityville segment. The worst problems involve the questions never asked, the facts never researched (or at least reported), and ABC's cursory treatment of the sole skeptic interviewed.

The Priest's Account

Vargas described how the tainted history of the house prompted the Lutzes to call on the services of a priest. "[T]he house's history did unsettle them enough to have a priest, Father Pecoraro, seen here with the Lutzes' children, bless the house. Lutz says the priest swore that in one room he felt an unseen hand slap him and heard a loud voice warn him."

Lutz said: "He heard the words 'Get out' very strongly. He became ill. He had flu-like symptoms. His hands bled openly for a while."

Vargas continued: "The priest reportedly has since died, but within days Lutz says his family also began to notice strange things about their new home."

George Lutz twice passed up the opportunity to deny that he had concocted the story about the horrors in order to turn a fast buck.

The Lutzes were embroiled in several lawsuits regarding the book and story. Vargas was apparently unaware of the contradictions that arose in trial testimony and interviews that appeared in major newspapers such as *The Washington Post* and *Newsday* in 1979.

The Long Island newspaper *Newsday*, which covered the trials, interviewed Pecoraro. This is what reporter Michael Kernan writes in a September 16, 1979, article in *The Washington Post:* "Father 'Mancuso' who *Newsday* said was Rev. Ralph J. Pecoraro, told the newspaper that he had known Kathy during her first marriage and had instructed George, a Methodist (since converted to Catholicism), before their marriage. But he had never been near the house at 112 Ocean Ave., the paper reported, and had referred the couple to the local parish priest, to whom they never went."

The late parapsychologist Stephen Kaplan, in his book *The Amityville Horror Conspiracy*, quotes another 1979

Newsday article which reported Pecoraro's trial testimony, maintaining that he had heard the words "Get out," but also admitting that "the resulting terrors which befell him in the book never happened."

So either George Lutz or Catholic priest Father Pecoraro is mistaken or lying. Yet *Primetime* never posed the contradiction to Lutz.

William Weber's Account

Elizabeth Vargas interviewed DeFeo's attorney, William Weber, about a meeting with the Lutzes at his house. Weber is clear that he and the Lutzes began fabricating much of the Amityville story that night, with the ultimate goal of cashing in on the tale they wove:

> Weber: "I don't remember the number of bottles of wine that we had, but it was certainly more than four. There was this give and take. And towards the end we were creating ideas."
>
> Vargas: "What do you mean, 'Creating'?"
>
> Weber: "Creating. In other words, if you are talking about the green slime, why couldn't it have come from a demonic source?"
>
> Vargas: "But did he tell you he was making this up or did he tell you that 'we also saw green slime'?"
>
> Weber: "He never told me he saw green slime."
>
> Vargas: "So, bottom line, do you believe the Lutz's story about what happened in those 28 days?"
>
> Weber: "Absolutely not."
>
> Vargas: "Why not?"
>
> Weber (chuckles): "Because I know that they were making a commercial venture out of this."

Vargas then posed Weber's allegations for George Lutz's response. "We know what happened to us," Lutz replies, "And we remember."

Lutz does not directly deny Weber's allegations. Inexplicably, Vargas, who presses Weber for the "bottom line," lets Lutz escape the obvious question.

Dismissing the Skeptic

Primetime had called CSICOP in mid-October 2002, looking for a skeptic to comment on the case for the upcoming Halloween special. We provided Joe Nickell, who was set up from the start to look ill informed. Vargas introduced Nickell as the representative of the "legions of professional skeptics" attracted to the Amityville case, but denies him—and CSICOP—the basic courtesy of stating his full-time position as Senior Research Fellow. From here it only gets worse: "But Nickell," Vargas narrates, "has never been inside 112 Ocean Avenue. He has never even met the Lutzes." She neglects to mention that he had been to the site, and had spoken with Barbara Cromarty. Vargas interviewed Nickell at length in the studio, but only a few general comments about the suspicious elements in the Lutzes' account survived editing.

According to Nickell, some of the worst abuses never made it to the final cut. During the studio interview, when Nickell brought up the fact that police never came to the Lutzes' home to investigate alleged phenomena as claimed in *The Amityville Horror: A True Story*, Vargas immediately accused him of ignorance, saying that was never stated in the book. In fact, it is, on page 157 of the original paperback. Clearly, Nickell was not the ignorant party.

Lutz Repeatedly Fails to Deny Concocting the Amityville Story

After the brief excerpt from the Nickell interview, Vargas once again set the allegation of hoaxing for profit in front of George Lutz:

> Vargas: "What is your reaction to people who say, 'Look, the Lutz family made up this entire tale to make money. This was something that they decided to do, to stage, so that they could sell a book, and (wow!) even make a movie.'"
>
> George Lutz: "Well, we could've done it better. We should've done it better if that was the plan."

Vargas, for a second time, was content to let Lutz get away with a blatant rhetorical dodge. George Lutz twice passed up the opportunity to deny that he had concocted the story about the horrors in order to turn a fast buck. Then Vargas narrated a sugar-coated portrait of the Lutzes as beleaguered, self-sacrificing altruists who made only a paltry few hundred thousand dollars from their story:

> All told, the *Amityville Horror* book and movie netted the Lutzes about $300,000, they say. Not bad, but certainly not the multi-millions those with the rights to the book, movie and all the sequels raked in. And the Lutzes gave up a lot along the way. Their home. Their business. Even their children were taunted, they say, when their story became known.

Finally, Vargas reported statements made by Ronnie DeFeo, Jr., serving his six consecutive life sentences in a New York State prison, in a phone interview with *Primetime*: "As for those ghosts, he claims he lied and that there were no voices commanding him to kill." (Vargas noted earlier in the segment that the jury for Ronnie DeFeo's murder trial did not believe DeFeo's claims that he heard strange voices in the house which compelled him to kill.)

"There are tangible reminders of what happened in Amityville," Vargas concludes, mentioning the DeFeo gravestone and the house where the murders occurred. "And all those photographs inside the house. But no one has an explanation for this picture. Is it really an eerie looking little boy, and, if not, what is it?" In fact, Nickell did point out problems with the photograph of the boy, which *Primetime* editors omitted.

So in the end, a spooky photograph trumps all the evidence that *The Amityville Horror* is complete fabrication. If this is what Diane Sawyer meant by "investigate" at the beginning of the show, *Primetime* should stay away from investigative reporting.

—Kevin Christopher

Kevin Christopher is Public Relations Director for CSICOP. □

Shattering the Crystal Sphere

RALPH ESTLING

Make no mistake, the Universe is an amazing, utterly marvelous place. So what a shame to spoil all that marvel by populating it with our little gods, spirits, dreams, all that fact-free supernatural, paranormal garbage and pretend our Meccano-Universe was hammered together and bolted on for our pleasure and benefit, and so all our questions are answered right from the start, almost before they're asked, and nothing is left out and everything is accounted for, in this cute little cosmos we construct, neatly ordered and arranged and put in its own little place, proper and tidy, like cups and saucers in the cupboard.

I suppose we do this, commit this sad sacrilege against existence, because we've decided we can't figure existence out any other way. A shame. All that march of marvels that reality offers us counts for nothing, which is a terrible waste of the truly and totally wondrous. But we have decided we haven't the ability to cope with it. Or the imagination. We must have gods to do all the donkey work.

So, what can we put in the place of gods? And should we worship it?

It occurs to me (and has occurred to others) that evolution might well be at work all the way down, not just in biology but in chemistry and physics, so that it's not just life that must complexify (for some as yet unknown reason) but everything else must do so too (for an as-yet even more unknown reason), right down to the Universe itself. If we're to believe the Big Bangers, the Universe started out simple, as simple as existence can be, and then grew and developed and transmogrified into a phantasmagoria of complication and inexplicable (to us) detail. Natural selection would then be ubiquitous, quite literally a universal phenomenon, an unplanned, unpurposed but inescapable built-in process within existence. And then we would have to find out why. Not philosophically or metaphysically why, but scientifically and logically why. *Really* why. Assuming the question, Why?, makes sense.

It's easy to get mystical and New Agey about this sort of thing, for there's nothing easier than creating mysticism where there is mystery. But mystery is only lack of knowledge, lack of understanding, which is the norm, the natural state of man. There's nothing special, nothing remarkable or noteworthy about mystery.

Quite often, in order to come to a working arrangement with mysteries, scientists create vast metaphors and vibrant analogies and call these "wave functions" or "multiple worlds" or "force fields"—"quantum fields," "electromagnetic fields," "magnetic fields," "gravitational fields," "axion fields," "Higgs fields," and so forth, to populate their empty ignorance and give to airy nothing a local habitation and a name. But if they're good physicists, honest ones, they know that all this naming of parts is just a veneer, a finish, to be painted over the real, underlying, and, so far, unfathomable mystery beneath. (I have a vision at this point of Quantum Fields staggering back and, hand to brow, muttering "Godfrey Daniel, I've been hornswoggled!")

Well, we can have mystery, unknowingness, and still not need gods. But

Our frequent columnist Ralph Estling writes from Ilminster, Somerset, England.

we're greedy for Certainty and will stuff ourselves full of it, even when we know in our hearts it is a lie. Of course, being gentlemen and ladies, we don't call it a lie, we call it a mystery, a myth, a story, religion, poetry, a dream. But it is a lie, whatever we call it, and how furious we become when someone brings this to our attention and shatters the crystal sphere we have so carefully and with such meticulousness constructed around us, so that now that the crystal is smashed to pieces, reality pours in and engulfs us.

Oh, I can see why we must have gods. But it's a shame. For reality is marvelous beyond all the gods man has ever created or will create. The trouble is, of course, reality owes nothing to us.

Is it a comedy or a tragedy that we have composed for ourselves? I'm not sure, for the production has large and liberal dollops of both. Perhaps then it's just as well to laugh at the human condition, the man-made human condition, for otherwise we wouldn't be able to breathe for the tears and hiccups.

Convictions, said Nietzsche, are more dangerous enemies of truth than lies. But another great enemy of the truth is just the opposite of conviction: indifference. The Roman Catholic Church, which, like Nietzsche, knows something about conviction, has a name for this apathy: *acedia* (or *accidie*), which is laziness of spirit, idleness of soul. Between mindless conviction and spiritual uncaring, truth plods a perilous path.

And yet, it moves. Slowly and unsurely, often enough at the pace of an arthritic sloth, it moves. Never mind the postmoderns, the relativists, the neo-Kuhnians, it moves. There is a progress, real, not imagined, and there is beauty in this. Anyone who bothers to learn something about the history of ideas knows this. Our knowledge (though not necessarily our wisdom) advances and improves over time. There are setbacks, calamities, disasters, letters to the editor, but the overall direction is, amazingly enough, forward, just as the course of natural selection dictates, whatever some biologists may say as they condemn us in their righteous wrath for what they call our hubris, our conviction that life is part of a greater game called "Evolution of Novelties of Increasing Complexity by Means of Natural Selection at Least in the Long Run." Those who deny this, whether scientist or non-scientist, are the Disillusioned, those who have lost their little gods and as a result hate everything. Having thrived and thrilled on illusions that promised the devout the gift of Knowing for Sure, if only they worshipped them, with no questions asked, or even contemplated (for thought is treason), the Believers came at long last to realize their folly (as Believers sometimes do) and, like children who wake up on Christmas Eve night and see that Santa Claus is merely their father and mother tiptoeing and giggling around the tree, decide to hate their parents the rest of their lives for having deceived them. Truth as trauma.

These Disillusioned have only deceived themselves and so, though self-hate might therefore follow in some kind of half-assed, crazy-logic way, it is all an extravagance, an over-abundance of emotional discharge, uncalled for, pointless, and really rather silly.

When (if) our crystal sphere of Ignorance is shattered and the light rushes in, it's no surprise that we curse the brightness that momentarily blinds us. But, if we are patient, and a little grown-up, we shall learn to see again. Only this time what we see will really be there. And what we shall learn, at long last, to rage against will not be the light, but its dying. □

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The Mars Effect Cannot Be Pinned on Cheating Parents

SUITBERT ERTEL

The Mars Effect exists. This is premise A of one of the world's leading critics in astrology (Geoffrey Dean: "Is the Mars Effect a social effect?," SI May/June, 2002). *Mars Effect* only means *correlations between birth frequencies of athletes and Mars positions at birth hours*, as reported by the Gauquelins. The term as used here does not imply any astrological endorsement, as it usually does in public discussions. Planet-birth correlations, the statistics, have been the center of disputes over several decades. Dean long since confirmed their reality, a stance based on his own careful scrutiny of the Gauquelins' and the skeptics' birth data files.

Yet his message about planet-birth correlations, message (A), perhaps shocking for some, is immediately followed by message (B) reassuring for the shocked: Forget about astrology altogether. All Mars, Moon, Jupiter, and Saturn effects ever reported by the Gauquelins and confirmed by others can be explained by human manipulation, not by Gauquelin's manipulation as many skeptics suspected in the past, but by cheating parents. The parents dutifully reported birth dates and hours at their registration offices, but some of them adjusted, less dutifully, birth hours of their children in order to make them coincide with favorable planetary positions.

I for one endorse Dean's message A (see Ertel in SI, 1992), but not B. Let me explain why I reject B, the parental tampering hypothesis. Two reasons are straightforward, more technical issues, intertwined as they are with tricky statistics, have been addressed elsewhere.[1] First, Dean's hypothesis implies that nineteenth century parents were already aware of birth/planet connections uncovered through Gauquelin's research in 1955. How could the parents know at that time, e.g., that their kids' chance at age twenty or so in athletics would be better if they had been born with Mars rising or culminating? Or that for their kids as actors twenty-five years after birth, a rising or culminating Jupiter at birth would be an advantage, or that for their fame as scientists, at age thirty-five or later, natal Saturn in that position would count, etc.—to name three of fifteen confirmed planet/birth connections. Such beliefs had never been documented in pre-Gauquelin times.

Dean long since confirmed the reality of planet-birth correlations, a stance based on his own careful scrutiny of the Gauquelins' and the skeptics' birth data files.

Why should they have been documented? Suppose that Gauquelin's "neo-astrology" (which I will abbreviate as GN) *came into existence as belief early* on. In that case GN would have clashed with astrology's core traditions, based

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primarily on Ptolemaic astrology and its derivatives. Consider, for example, that in traditional astrology a planet passing through the *house* immediately *after* its rise ("house"—that is, sector, one-twelfth of the daily circle) was considered as weakly positioned while for Gauquelin's GN this sector was one of the two strongest. Consider further that for Ptolemaic astrology planetary *aspects* (that is, pronounced angles between planets) are of paramount importance while for GN angles between planets are entirely irrelevant. More contrasts between traditional astrology and GN exist. Had GN ever become an astrological belief, then disputes over that heresy by proponents and disbelievers would have found their way into written works. Dean did not and certainly cannot provide any document proving that GN-beliefs existed before 1955.

Problems accrue. The Gauquelin data show that GN planetary effects occurred 1800–1950 all over Europe, from Italy, France, Germany, to Belgium and Holland, without significant variation. Dean's tampering hypothesis thus presupposes that GN ideas spread evenly among societies, overcoming all linguistic, national, and cultural barriers—all this occurring in obscurity. Dean's speculation seems preposterous.

More is on file. Since 1955, the Gauquelin findings have been accessible through books, magazines, journals, conferences, TV, and the Internet, yet such widespread awareness of the Gauquelin heresy did not effect noticeable changes in existing astrological belief systems—mini-concessions to GN notwithstanding. How then could GN, an elaborate astrological system, ever conquer the minds of masses of nineteenth century people all over Europe, without modern media technology, without teachers, and even without using available means of publicity in those days: leaflets, pamphlets, booklets?

Dean faintly acknowledges the problems. Ptolemaic astrology was "dead" since the seventeenth century (Dean, p. 36), so it is difficult to attribute to nineteenth-century parents astrological motivations. But Dean simply fills the lacuna of beliefs with GN, and he calls nineteenth-century GN, his invention, a "debased remnant" of Ptolemaic astrology.

Dean's contrivance suffers from an overload of puzzles. Whence do rotten remnants of a belief system, dead since 1650, receive sudden vitality in 1800? How can degenerating leftovers of beliefs form new structures clearly distinct from their origin? GN is not a remnant, rather an antipode of Ptolemaic astrology, an independent multifaceted system, not digestible by Ptolemaic descendants even under most favorable conditions today. And why didn't the time-tampering parents of modern film stars or Olympic winners found in the data lists of Gauquelin's 1955 book not react by shouting in public, "Wow! He found out!"

My second point of dissent is Dean's presupposition that parents were sufficiently informed, by almanacs, about planetary positions. Only one third of the best of Dean's historical periodicals provide information about the rise of Mars, Jupiter, and Saturn, and if at all, then for only one or two days of a month.

Moreover, almanacs were considerably biased in favor of sights at night, they dealt with *visible* planets. Also: parents without almanacs, dependent on viewing conditions, could see planets at night only. So if the parents fudged their children's birth time, one should find more effects among night births than among day births. But when I tested this I found that daytime planetary effects were significantly *more*, not less pronounced than night-time effects (see table 1, day 26.5 percent, night 24.6 percent). This contradictory result alone, I posit, disproves convincingly what Dean purports to be "so simple, so obvious" (p. 37).

So what to conclude? Dean's message (A) stands (planet-birth correlations), but his message (B) (parental tampering) must be renounced. No suitable explanation for (A) has yet been offered. Tolerance of ambiguity, a scientist's strength, is still demanded.

Table 1
Planetary effects, day and night births compared

From Dean's total (N=15,942) daytime and nighttime births were selected. "Day" means the sun is above the horizon, "night" below the horizon (Paris calendar). Dean's workable total for this test is based on professions with significant birth surplus in rising and culminating sectors of Moon, Jupiter, or Saturn (Mars excluded because of "dawn effect" intrusion) (N = 10,457). Percent chance expectation obtained from a control group of Gauquelins' ordinary people (day N = 8,685; night N = 9134).

	Total	G-sector	% G-sector	% Expected
Daytime births	5,234	1,393	26.6	22.3
Nighttime births	5,223	1,281	24.5	21.3

Note

1. See "Scrutinies of Geoffrey Dean's Parental Tampering Claim," a series by S. Ertel in *Correlation*, of which are published: (1) "Tampering with birth dates should occur more often among rural than urban people," 2001, 19(2): 37–46; (2) 2001, "Births of priests should abound on feasts," 2001, 20(1): 30–36: (3) "Superstition should decline over time," 2002, *19(4): 39-48; Submitted: (4)* "Three tests, three failures," (5) "Whence midnight avoidance?" These studies could not confirm Dean's idea that Gauquelin planetary effects have anything to do with superstition (belief in witching days, ghost hours etc.). In his SI article Dean missed referring to this work. □

Response to Ertel

GEOFFREY DEAN

Until now the only adverse comment on my SI article has been from an astrologer complaining about "subtle negativity." So I thank Professor Ertel for raising specific issues.

Ertel says I claim planetary effects can be fully explained by the faking of birth data. But as stressed in SI's editorial, I claim no such thing, see later. Ertel then gives four arguments against this nonexistent claim. They also neglect role-playing, so they miss half the action.[1]

(1) The necessary beliefs did not exist, and to have them all over Europe seems preposterous. Not so. The first major printed compendium of religious and debased astrological advice, *Le Grand Calendrier et Compost des Bergers*, published in France in 1491, was still being printed largely unchanged more than 300 years later with equally long-lasting translations in other countries. It says, for instance, that the man born under Jupiter shall be "a fair speaker . . . shall love to sing" whereas under Saturn he shall be "full of debate . . . shall be wise in counseling," making them the planets of choice for a family with traditions in acting or science respectively. There is also a woodcut showing how to find the culminating point (figure 1), with a star just past culmination; note the exact match with Gauquelin's planetary findings.

(2) Almanacs gave less planetary information than I suppose. Not all almanacs gave rise times but many gave daily moon-planet aspects (for forecasting the weather) plus moon rise, set, and often culmination times, which together were the next best thing. What matters is that planetary information was available.

(3) Contrary to expectation, planetary effects by day exceed planetary effects by night. The expectation assumes people had no access to almanacs, nights were never cloudy, and views of the horizon were never obstructed. But none of these are likely in nineteenth century Europe.

Figure 1. Finding the culminating point by a plumb bob so that "one may know the hours by night . . . and divers other things that may be practised on the sky." From an English translation about 1516 of the best-selling *Le Grand Calendrier et Compost des Bergers* [*The Big Calendar and Compilation of Shepherds*], of which one-fifth was devoted to a debased astrology. Here shepherd means the Good Shepherd and every man who works. In her survey of French almanacs, Bollème (1969) says "*Le Compost* was not only the model of almanacs but also the best expression of the popular mentality . . . the level that the other [almanac] texts tried to approach."

(4) Ertel's five articles in the astrology journal Correlation *further disconfirm my ideas, period.* Not so. See my summary and response in note 2.

Since the death of Gauquelin in 1991, Ertel has been heroically championing the reality of planetary effects. So his eagerness to dismiss this new evidence for that reality is hard to understand, as is his neglect of its most striking feature—its close match to every baffling puzzle posed by Gauquelin's findings. This alone should prompt further consideration, not dismissal. After all, contrary to what Ertel says, I claim only that social effects exist in the Gauquelin data which need to be controlled before we can proceed further. Where is the problem?

Of course *a purely social explanation of planetary effects* would be denied if it could be shown that parents and children did not have the information, opportunity, and motivation to create them; and that planetary effects still emerged under conditions where social effects are absent, as when parents are excluded from the reporting process and the child is ignorant of its birth planets. But Ertel does none of these things. Worse, he gives no hint of how the baffling Gauquelin puzzles might be explained if not by social effects, which is like claiming that cars are propelled by means unknown but certainly not by chemistry.[3]

Notes

1. Ertel's arguments have been addressed by me in Dean (2000) and in an update, to which readers should refer for more detail than is possible here.

2. Ertel's arguments with my response in parentheses are briefly as follows: My requirement that superstitious beliefs be stronger in rural areas is not supported by the results for 7,952 French professionals. (There is no such requirement.) On Christian feast days the excess births for 2,390 priests and monks was not significantly more than for 15,942 professionals. (The excess was 39% and 13%, both in the expected direction.) Superstition declined steadily from 1800 to 1950 but the avoidance of unlucky days etc. did not, therefore avoidance is not a valid measure of belief. (So people avoided unlucky days because they were non-believers?) Friday the 13th is not especially avoided. (Not a European belief until after 1945.) Planetary effects should be weaker on faked days, not stronger. (So the more the faking the less the effect?) Adding other planets should increase the correlation with avoidances due to the extra information but it does not. (Why should adding non-relevant planets provide extra information?) A total of 320,817

RESPONSE TO ERTEL
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GUIDE FOR AUTHORS

The SKEPTICAL INQUIRER critically examines claims of paranormal, fringe-science, and pseudoscientific phenomena from a responsible, scientific point of view and provides a forum for informed discussion of all relevant issues. Our subtitle is "The Magazine for Science and Reason." We encourage science and scientific inquiry, critical thinking, and the use of reason and the methods of science in examining important issues. The readership includes scholars and researchers in many fields and lay readers of diverse backgrounds.

Write clearly, interestingly, and simply. Avoid unnecessary technical terms. Maintain a factual, professional, and restrained tone. All submissions are judged on interest, clarity, significance, relevance, authority, and topicality.

Direct critiques toward ideas and issues, not individuals. Be prepared to provide documentation of all factual assertions. A useful set of guidelines for those who seek to evaluate paranormal claims, titled "Proper Criticism" and written by Professor Ray Hyman, is available from the Editor. Among the guidelines: clarify your objectives, let the facts speak for themselves, be precise and careful with language, and avoid loaded words and sensationalism. State others' positions in a fair, objective, and nonemotional manner.

CATEGORIES OF CONTRIBUTIONS

Categories of contributions include: Articles, Book Reviews, News and Comment, Forum, Follow-Up, and Letters to the Editor.

Articles: Articles may be evaluative, investigative, or explanatory. They may examine specific claims or broader questions. Well-focused discussions on scientific, educational, or social issues of wide common interest are welcome. We especially seek articles that provide new information or bring fresh perspective to familiar subjects. Articles that help people find natural explanations of unusual personal experiences are useful. So are articles that portray the vigor and excitement of a particular scientific topic and help readers distinguish between scientific and pseudoscientific approaches. Well-balanced articles that report on and evaluate controversial scientific claims within science itself are also needed.

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Readers Forum: Can We Respond More Rationally To Terrorism?

The cover article of our September/October 2002 issue, "A Skeptical Look at September 11th: How We Can Defeat Terrorism By Reacting to it More Rationally" by Clark R. Chapman and Alan W. Harris, provoked, as we expected, enormous reader response. Some was quite strongly stated; much was thoughtful. We provide here a representative cross-section of letters submitted to SI. In addition to these, the authors also received many letters and messages sent directly to them (not included here). As is often typical, those letters tended to be more supportive and less critical than those sent to SI for publication. At the end of this section, Chapman and Harris respond. —Kendrick Frazier, Editor

I suspect that I speak for more than a few skeptics by expressing disappointment at Clark Chapman and Alan Harris's article calling for a "more rational" response to Osama bin Laden's mass murder of thousands of innocent people. Chapman and Harris begin by arguing that 2,800 deaths in the World Trade Center—they leave out the hundreds more who died at the Pentagon and in Pennsylvania—weren't all that bad, since there were "20,000 Indian earthquake victims earlier in 2001," and look how many people die in auto accidents.

This the type of warped logic that left us defenseless against bin Laden's fanatics in the first place. In 1990, one of bin Laden's followers assassinated Jewish militant Rabbi Meir Kahane. The case was not properly investigated—it was only one death, and more people die in automobile accidents every day, after all. Thanks to the bungled investigation, the assassin's associates were never apprehended, and they proceeded to bomb the World Trade Center in 1993, killing six more people, injuring 1,000, and causing massive losses to the New York economy. But what's a mere six deaths? More people die in auto accidents every week, don't they? The 1993 bombing suspects were never connected to Osama bin Laden, and as a result, he went on to bomb the Khobar Towers in Arabia, another American base in Dhahran, our embassies in Kenya and Tanzania, and the U.S.S. *Cole* in Aden. But that cost only about 30 or 40 lives, and more people die in accidents every month. Since our intelligence agencies never caught him, bin Laden was able to get his followers to hijack four airliners and crash them into the Pentagon and the World Trade Center, killing approximately 3,000. That's not a real problem for Chapman and Harris, since more people die in auto accidents every year.

Chapman and Harris seem to regard the World Trade Center attack as if it was an isolated incident. It is, in fact, only the most spectacular terrorist action by a network of pan-Islamist organizations which span the world and seek the extermination of all non-Muslims, as well as all Muslims who don't go along with their particular brand of Islam. . . .

Sticking one's head in the sand and "going about one's business" as if nothing serious was taking place is not the way to protect innocent people from these blood-

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thirsty fanatics. That is a lesson we should have learned from our failure to stop Hitler. The government's recent involvement with airport security may seem like an overreaction to Chapman and Harris, but until bin Laden is caught or killed, the danger to innocent passengers is very real, and the government has responsibility for protecting them. If other innocent Americans are killed in the future, government officials—not their critics—are going to have answer for it. . . .

Richard Morrock
Bay Terrace, New York

I read "A Skeptical Look at September 11th" with initial interest followed by stunned disbelief. The subtitle, "How We Can Defeat Terrorism by Reacting to It More Rationally," suggested that perhaps the authors might speculate that it would be more rational to examine young Arabs more closely at airports than a senator, a former vice-president, or little old Jewish lady.

Alas, the leitmotif of the piece can be summarized in these words of the authors: "By minimizing our negative reaction, we might contribute to undermining terrorists' goals as effectively as by waging war on them or by mounting homeland defenses." Even a jot of skeptical thought would show their theme to fall somewhere between stupid and insane. Terrorists are trying to destroy us, and we can stop that by recognizing that more people die from auto accidents or earthquakes abroad? The blindness of the authors to the imminent threat facing us is made clear when they say that terrorism "*should* concern us if we truly think that future attacks might destroy our society. But who believes that?"

Certainly the "many friends and colleagues" to whom the authors are grateful, and doubtless have similar political agendas, may not believe that. This disconnect from reality reminds me of the befuddlement of a *New Yorker* writer when she learned that Reagan had won the presidency. It's not possible, she complained. "I don't know a single person who voted for him."

Albert J. Forman
Palm City, Florida

Clark Chapman and Alan Harris miss the mark in their focus on the "rational" risks of terrorism. While I can appreciate the goal of encouraging a logical outlook on life's risk, the authors are comparing apples and oranges when they analyze the terror attack in the context of more mundane hazards.

Government is, first and foremost, a compact for the prevention of violence between people and, most of all, for mutual defense. I quite reasonably expect my society and my elected officials to take a more active interest in, and expend more resources to prevent, my being murdered by national enemies (domestic or foreign) than my consumption by a shark.

Chapman and Harris partially address this concern by pointing out that domestic homicide is committed by malicious persons and kills many more people than terrorism, yet does not seem to concern us as much, judging by how much they calculate that we spend on the problem. Poor example. One, there is substantial disagreement over the proper solutions to the problem of violent crime, but one thing is certain: none are military. Different hazards are, well, different, and demand different sorts of solutions; some are more costly than others; one cannot determine the seriousness of a society's response based on dollar amount alone. Two,

the level of violence in society varies year to year, but never goes away and is not subject to absolute deterrence, as are attacks by national enemies. Three, terrorism is political murder, and represents a special threat to our secular democracy. Four, the authors ignore the very real threat of weapons of mass destruction.

A final point. Chapman and Harris scoff at the threat that these terrorists might "destroy us as a society" by asking "who believes that?" But while it may be that the jihadists cannot hope to destroy us entirely, as long as we fight them more vigorously than the authors may like (and ignoring for the moment the awful effects for world peace, the world economy, and the future of democracy should we fail to defeat them) only an insane society would not act to thwart "lesser" yet still catastrophic threats, such as a nuclear device being exploded in a major American city.

Evan Kaiser
Seekonk, Massachusetts

Chapman and Harris make a good case for rational risk analysis, but much of the time they are comparing apples with oranges. Sure, the figures for U.S. deaths by automobiles, homicides, STDs, and home accidents are huge and horrible. But these are reflections of a large population; their causes are diffuse and varied. The effects of a terrorist attack, on the other hand, are concentrated—the result of a malicious, organized, and deliberate action. And more of the same is promised.

That said, however, I must admit that the American reaction has been about as rational as the behavior of a flock of decapitated hens. The next big terrorist attack will probably have nothing to do with air transport; they've been there, done that, and we have been warned. It should suffice to make cockpit doors really hard to penetrate, and permit pilots to carry weapons if they so desire. Equipment to sniff for explosives in luggage can follow.

A whole new Federal organization for airport safety is surely overkill. But politicians have gotten into the act. What counts for them is money, publicity, and power (especially power). They must be seen as doing something; it doesn't much matter what.

So I don't have much confidence that Chapman and Harris will have any great effect.

Charles H. Chandler
Lexington, Massachusetts

I found "A Skeptical Look at September 11th" very encouraging. If we've so thoroughly exposed all the traditional scams that we must now turn to discussing international relations, then we've arrived!

However, the proper reaction to the attacks is eminently debatable by people of good will. As a board-certified, 24-carat skeptic, I see nothing to debunk. Reasonable people of good will and intelligence can hold forth from both sides of this issue.

The authors, though, do make one of a series of basic errors, partly alluded to by Kendrick Frazier in his editor's note. They fail to take into account the deaths that have already been prevented by our "irrational" response. The magnificent transformation, by force of arms, of landlocked Afghanistan, halfway around the world, from a bloodthirsty medieval tyranny into a budding republic in a few months, is something to see.

Deaths and potential deaths should be properly plotted as a geometric curve increasing over time to the most recent 3,000 from Sept. 11 and projected into a future of biological, chemical, and atomic attacks on our cities.

The authors inexplicably ignore the difference between ordinary, traditional deaths and risks that we have long since come to terms with, and those inflicted by new, violent foreign enemies who consciously pursue the goal of murdering us and eliminating our way of life. Any sane analysis will conclude that national survival, itself, is uniquely at stake from the latter, and that a large and proportional reaction is called for.

Don Vandervelde
Gig Harbor, Washington

Chapman and Harris make an excellent rational and objective analysis of the 9/11 attack and our reaction to it. Unfortunately, it is a poor scientific analysis. It is based on assumptions about "objective" reality: a premature death here is worth a premature death there, a dollar here is worth a dollar there, a job here is worth a job there, etc. Even when the characteristics of these items appear almost identical, casual observation shows that people do not value them in this "objective" manner. A good scientific analysis is to provide understanding, insight, and (sometimes) predictive power. Since the authors' assumptions are not even close to valid, their conclusions are of little scientific interest.

What would be of great interest is to find value systems that make a person's, a group's, or a nation's actual actions rational. Perhaps the the authors could shed light on why society almost completely ignores the large risks of asteroids and yet demands strong action to combat the very minor risks of West Nile virus, shark attacks, and power lines. Why is the world up in arms about twenty or thirty innocent people killed each year by the U.S. judicial system, yet pretty comfortable about 200,000 to 300,000 innocent people killed or maimed each year by drunk drivers? The goal of science should be to understand "irrationality" better, not just to point to irrationality.

John and Nancy Rice
West Lafayette, Indiana

I generally agree with the authors. However, I take issue with this statement: "Billions of extra tax dollars are sent on military operations in Pakistan and Afghanistan rather than on enhancing American productivity." Are the authors implying that we should not have responded militarily against Al Qaeda? If so, what should we have done to enhance American productivity? Send them flowers grown in America?

Jaime Arbona
Mayaguez, Puerto Rico

The article contains much useful thought, but the premise that the terrorist threat is not serious is silly.

After the flowering of Greek and Roman civilizations the world did regress into the Dark Ages. Whether due to barbarians at the gates or contagion within, the world did indeed succumb. Now there are new barbarians at the gates and the threat they pose is far greater than the threat to Rome.

High technology and religious fanaticism are a potent mix; smart bombs pale by comparison. In the weeks after the attacks, my engineer friends and I spent time at lunch dreaming up terrorist scenarios. We soon stopped when it became clear to us that it was easy to do far worse than topple the World Trade Centers.

Thomas R. Freeman
Columbia, South Carolina

Your "Skeptical Look at September 11th" is the best and most reasoned analysis of that tragic event that I have read.

I wish the article could be disseminated to a larger audience.

Alfred N. Bederman
Wilmette, Illinois

This rational look at the disproportionate reaction to the terrorist attacks rang true for me, as I have been more and more disturbed about the flag waving, the baseless rounding up and incarceration of individuals fitting certain ethnic profiles, empowerment of a law enforcement agency above the guarantees of the Constitution, all in the name of a sad but anomalous act of terrorism. I have read the article over and over again since my magazine arrived, and again today, September 11, 2002, after watching the anniversary activities, and weeping, even though *I knew* what was going on with my feelings.

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NOVEMBER/DECEMBER 1998 (vol. 22, no. 6): Gaps in the fossil record: A case study, *Thomas* / The Martian Panic sixty years later *Bartholomew* / The perils of post-hockery, *Ruscio* / May the force be with you, *Krauss* / The Mead-Freeman controversy: *A fresh look: Much ado about nothing* The 'Fateful Hoaxing' of Margaret Mead, *Côté* / Margaret Mead, Derek Freeman, and the issue of evolution, *Shankman* / Second World Skeptics Congress: Science and reason, foibles and fallacies, and doomsdays / Science and the unknowable, *Gardner*.

SEPTEMBER/OCTOBER 1998 (vol. 22, no. 5): Special Section: What are the chances?, Coincidences: Remarkable or random?, *Martin* / Numerology: Comes the revolution, *Dudley* / Calculated risks, *Cole* / How to study weird things, *Trocco* / Why would people *not* believe weird things?, *Anderson* / Starkle, starkle, little twink, *Hayes* / Of planets and cognitions: The use of deductive inference in the natural sciences and psychology, *Schlinger Jr.* / What's going on at Temple University?, *Gardner*.

JULY/AUGUST 1998 (vol. 22, no. 4): Special Report: Mars Global Surveyor photographs 'Face on Mars', *Morrison* / Magnetic therapy: Plausible attraction, *Livingston* / Biomagnetic pseudoscience and nonsense claims, *Sabadell* / Catching up with eighteenth century science in the evaluation of therapeutic touch, *Ball and Alexander* / Paranormal depictions in the media: How do they affect what people believe?, *Sparks* / Planting a seed of doubt, *Shneour* / Essiac: The not-so-remarkable cancer remedy, *McCutcheon* / Near-Earth objects: Monsters of Doom?, *Gardner*.

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When I have tried to talk with family and friends about the points in the article, however, the argument I received was about how September 11 was an attack on our shores the likes of which has not happened since Pearl Harbor, and how the national reaction that time was for the U.S. to join the Allies to fight the fascists, and as an American Jew, I'm glad they did. However, people conveniently forget the unfair and unconstitutional actions against innocent Japanese Americans and German Americans—and the many excesses committed against blameless American citizens during the McCarthy-era witch hunts by the FBI, and later described as regrettable, all in the name of patriotism. . . .

So—when I see the flags waving and hear the exhortations to "patriotism" in a way that excuses government from constitutionality, I'm skeptical, but I'm not sure how to balance the grief I feel for innocents retained at Manazanar against the elation of seeing the footage of the liberation of the Nazi death camps—I'm not sure how to validate a protester's First Amendment right to express anti-war sentiments, and at the same time honor a Viet Nam veteran who served because with the information available to him or her at the time it seemed like the right thing to do. When I just go ahead and speak my mind, inevitably it comes out sounding like I am an insensitive, unsympathetic rationalist. I admire that the authors admitted that they were touched by the TV coverage of 9/11, even though they knew their feelings were being manipulated.

I suppose I am confused because I am trying to compare this terrorist attack and the military responses to it, the details of which are either hidden from the public or are not yet calculable, with historical conflicts, which have had outcomes that are *themselves sometimes ambiguous.*

SI was very brave to run this story. Thanks.

Wendy Hughes
N. Hollywood, California

I am impressed with the authors' appeal for more objective analyses on public spending, and of their interesting data (although not new) on the relative risk of various factors which threaten our lives. But the ivory tower of planetary science is not the real world. "Rational analyses" based on the the concept that all lives are of equal value are unacceptable for two reasons: The first is that the World Trade Center attack was not just "malicious," it was part of a ruthless long-term effort to bring us down. Our response, as with the sinking of the *Maine*, the *Lusitania*, and the attack on Pearl Harbor, was from deep in our gut, rationality be damned.

The second is that human beings are genetically incapable of thinking objectively about things that affect their beliefs. Their mindset is further solidified by the hype of media and politicians, the one interested only in making money, the other in being reelected. So overreaction is built into the American psyche. The pendulum is always swinging too far in one direction or the other. One of the roles of skeptics is to damp these swings with practical rationality, not necessarily to overreact to incidental stupidities along the way.

J.C. Toomay
Carlsbad, California

I think everyone can agree that, in the face of an emotionally overwhelming event as September 11th, a rational reflection of the event and what's happened since is of the essence. However, Clark Chapman and Alan Harris give us mere intellectual clutter when they compare the destruction of the twin towers to traffic fatalities and deaths from hurricanes and floods. Certainly in raw numbers they may be greater but when making a moral evaluation is not motive also to be judged? The motives of legislators who don't fund cancer or AIDS research as well as they should which may result in deaths, for example, is surely rationally distinguishable from a totalitarian ideology where people murdered because they're too contemptible to live.

Gus Rudelich
Milwaukee, Wisconsin

We are at war. We may not have a clearly defined enemy, but nonetheless war has been declared on America. In the contract of war, it is our obligation to respond. Otherwise, we may as well open the doors and say, "Come kill our citizenry. We don't care." The societal danger is much greater with terrorism and war than with natural disasters and random accidents.

Are Chapman and Harris saying that we shouldn't respond to declarations of war? What about WWII and the cost of entering the conflict after America was attacked? The cost was great, but what choice did we have? Should we have adopted a more "objective" response then? WWII would have gone away if we just ignored it?

On September 11, Americans on American soil were attacked by a renegade band of intelligent, well-organized thugs bent on declaring war with our country. These are megalomaniacs with the guts to declare war even when they have no conventional army and with no regard for the conventions of one of civilization's oldest social structures. They have reduced the convention of war to irresponsible and indefensible butchery. These are people who don't care about winning a war as much as they care about killing Americans. . . .

It offends me to see intelligent individuals whining about the necessary usurpation of economic and social agendas while the country is at war . . . "the economic and emotional damage unleashed by 9/11, which touched the lives of all Americans, resulted mostly from our own reactions to 9/11 and the anthrax scare, rather than from objective damage." All of those things that Chapman and Harris seek to reinstate with diverted funds from homeland security would not exist if we weren't willing to defend ourselves with necessary force.

Bryan Schomaker
Atlanta, Georgia

It's a shame that these two authors could not articulate their valid points regarding "acceptable risk" and the costs of overreaction to the terrorist attacks without injecting their political agendas, or using sarcastic put-downs.

They also fail to understand the validity of an intensive counterattack on those that support terrorism. Our country was attacked and it's valid to assume that an overwhelming military response can act as a deterrent for future barbaric acts of this type.

It is natural for the reaction to such shocking events to be disproportional; the real issue is what happens in the long term. Already we are beginning to see some of the "knee-jerk" security measures being relaxed. Eventually, and I predict quite soon, we will return to "business as usual," but hopefully with a few well thought out changes.

Finally, it does your publication a disservice when your editors don't assure that submissions stick to the subject. It appears that the real issue for these authors is that their asteroid impact project has not received the funding they desire. Nor have we as a society spent our money on the political agendas that the authors personally feel are important.

Neither of these have any relevance to terrorism and didn't belong in the article. The fact is, we do not have a "zero-sum budget" as they claim (as is evident in the budget deficits caused by security-related spending). Their arguments for rational response to terror would have far more weight if they didn't use the article as a forum for their unrelated politics.

David Shier
Newport Beach, California

The entire theme of the article is advocating non-emotional responses to the terrorists. Does either author truly feel that an analytical approach to terrorism will deter future acts of violence? Does either gentleman actually think that by attempting to minimize the

events of that day and subsequent days that people will come to their senses (in the authors' opinions)? That we look upon the September 11 attacks as a math problem of the number of lives lost that day versus floods, diseases, traffic fatalities, homicides, and any other statistic that is thrown into the mix will make the attacks pale in comparison?

These were attacks on American soil by fanatical, cowardly people who had, and those of their still intact regime continue to have, a burning hatred of all that is American—which includes the ability of the authors to pursue their lives as they see fit in a country that is free and where the people are not dictated to on how to feel about events that occur or how much emotion they are allowed to express. . . .

Perhaps the authors should have [gone to Ground Zero and] spoken with people who were there to learn and understand what the attacks really mean. Then I believe the formation for their call for a rational approach might have been tempered with exactly what they seem to fear—emotion.

Patricia M. Browne
Hazlet, New Jersey

Clark Chapman and Alan Harris respond:

Some readers still react viscerally to the September 11 attacks. Arguments based on "you had to be there" (in New York City) or on some moral imperative to respond maximally to ruthless, bloodthirsty fanatics reflect understandable emotional reactions to a horrific event. But they are not a rational basis for responsible policies of a great twenty-first century nation. Some feel that the terrorists' hateful motives *somehow demand revenge and retribution; but that "logic" is for schoolyards and alleyways, not the pages of* SKEPTICAL INQUIRER.

Most letters have at least an internal logic: for those who believe that the barbarians are truly at the gate, that our nation is on the brink of destruction, that national survival is *really at stake, and that we're seriously in danger of extermination, then surely a massive response is appropriate. We wrote: "But who believes that?" Obviously, some SI readers* do *believe that, though not even the most hawkish policy-makers in the Bush Administration have argued that Al Qaeda—or even Saddam Hussein—is powerful and capable enough to credibly threaten our nation's existence. Surely any skeptic must acknowledge that such a premise is at least rationally debatable; most of the world apparently disputes the U.S. government's post-9/11 assessments and policies.*

Just because terrorists have "declared war" and seek to destroy us hardly means that we should treat their threat as perilous. One man may declare war on the U.S.A.; but surely the level of our response must depend on analyzing his capabilities: is he a blithering fool in an asylum who could do little harm, a Timothy McVeigh who could harm some but hardly prevail, or a dictator with his finger on the button of a vast arsenal of nuclear-equipped long-range missiles? Osama bin Laden is closer to a McVeigh than to a Khrushchev, in our opinion, but let's debate the facts instead of just presuming or asserting that war and massive homeland defense are necessary responses.

A couple letter writers confidently adopt a "geometric curve" analogy to forecast devastating future deaths. They join the ranks of fortune tellers (more often debunked in these pages) whose forecasts may or may not be true. By now we should all realize "Past performance is no indication of future growth." Other letters offer versions of a common logical fallacy: because Hitler had small beginnings, any tinhorn fanatic is likely to become a Hitler . . . when in fact most will not (and it is problematic to identify which if any might).

Some writers insist that we are "at war," as President Bush has said, though few Americans act as if it were so. This "war" resembles the "War on Drugs" or the "War on Cancer": well-motivated but endless endeavors that sometimes progress, often not. Despite what Richard Morrock suggests, the capture or death of Osama bin Laden will not cleanly end terrorism. Europeans have long lived with terrorism; it is not demanded of their leaders that other societal goals be sidelined until they have met their "obligation" to end all terrorism. Terrorism uniquely stirs our emotions, but—in the end—it really is just another serious hazard that we would do well to analyze dispassionately and respond to proportionately. Otherwise, by our own overreactions (as the terrorists hope), we further endanger our country, its values, and its economic well-being.

We never did suggest not responding at all, "sticking our head in the sand," "not acting to thwart," or "just ignoring" the 9/11 assaults, as some readers accuse. We advocated "prudent, focussed improvements in security" and "plugging security loopholes" lest thousands or millions more might be killed. We advocated more "balance." That it "could be as important to combat our emotional vulnerability to terrorism as to attack Al Qaeda"—not that we shouldn't attack Al Qaeda at all. Please re-read our article and reflect on the words we actually wrote.

We regret that a reader felt we inserted some personal agenda into our article by mentioning a hazard concerning which we are experts—the threat of asteroid or comet impact on Earth. In reality, we have both been publicly ambivalent about whether government expenditures on the impact hazard should be increased; we merely offered this as one more point-of-comparison with the massive post-9/11 expenditures. All such comparisons we posed as questions for discussion, unlike the assertions common in many of these letters.

Unfortunately, hype by media and politicians of both parties has had a chilling effect on frank dissent concerning our headlong rush toward "at war" national priorities. We are grateful, however, to the many readers who empathized with, and supported, our analysis and wrote to us privately.

We'll close by quoting more fully from Franklin D. Roosevelt's 1933 first inaugural address (it had nothing to do with Pearl Harbor), which seems very appropriate for our times. He asserted his firm belief "that the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance."

RESPONSE TO ERTEL

From page 64

hospital births in 1987–1994 showed a strong midnight avoidance, disconfirming any link with witches. (Avoidance was only of the witching minute 0:00, not of 0:01 onwards, despite a tendency to round to the nearest five minutes, so it was only to avoid ambiguity. If anything it supports nineteenth century beliefs about the witching hour 0:00–0:59.)

3. Ertel (1990) had thirty students sort the Gauquelin professions into alike groups, e.g., actors and musicians seemed more alike than actors and soldiers. A cluster analysis of their results, and of planetary effects, gave similar clusters, broadly *Art* (e.g., painters), *Science* (e.g., scientists), and *Action* (e.g., soldiers and sports champions), showing that planetary effects are not haphazard but conform to human views. But this is exactly what social effects would predict. In my update I show that day avoidances give similar clusters. That is, whether clustered by students, by planetary effects, or by day avoidances, the ten Gauquelin professions give broadly similar results, which should not be if there was no link between social and planetary effects.

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Ertel, S. 1990. Gauquelin's contentions scrutinized. In G.J.M. Tomassen, W. de Graaff, A.A. Knoop, and R. Hengeveld (eds.). *Geo-cosmic relations: The earth and its macro-environment.* Wageningen: Pudoc, pages 255–266. □

Also see "Readers Forum: Can We React More Rationally to Terrorism?" on pages 59–65.

—EDITOR

Sheldrake's Crystal Claims

I read with interest the article by van Genderen, Koene, and Nienhuys (September/October 2002), concerning Rupert Sheldrake's morphogenetic rationale of the apparent time-dependent shifting of the melting points of organic crystals. Though I have no doubt that many of the instances

cited by Sheldrake may be explained, as suggested by the authors, as examples of freezing-point depression due to the contamination of the crystals by the preparative reagents and/or by-products, by thermal decomposition products, or by imperfect resolution of optical enantiomers in the case of chiral materials, there is a second possible explanation which, in some ways, better fits the facts, though it in no way supports Sheldrake's morphogenetic hypothesis. This has to do with the phenomenon of crystal polymorphism, or the fact that many molecules are capable of adopting more than one intermolecular arrangement in the solid state. These alternative arrangements or polymorphs not only have distinctive shapes, they may also differ in their color, solubility, chemical reactivity, and melting points.

In the ideal thermodynamic case, each polymorph is stable over its own individual range of temperatures and pressures and, when that range is exceeded, it changes into a new polymorph. These interconversions are reversible and occur at a fixed transition temperature analogous to the melting and freezing points which separate the solid and liquid states. In actual practice, however, several polymorphs may coexist at the same temperature and pressure, in which case only one of them is thermodynamically stable. In this case the other polymorphs are said to be "kinetically metastable." This picture is virtually identical to that which the authors attribute to Sheldrake in which a substance exhibits "many slightly different crystal forms . . . each corresponding to a local energy minimum that differs a bit from the others." However, contrary to Sheldrake's belief, the Gibbs free-energy function has everything to do with this picture as it is the free-energy values of the various polymorphs that define the depth of each (free) energy minimum and determine which of the various coexisting polymorphs is the thermodynamically stable form. It is also important to note that the thermodynamically stable polymorph generally has a higher melting point than the kinetically metastable forms. Thus the kinetically metastable forms of the compound sulphathiazole melt at 175°C, whereas the thermodynamically stable form melts at 200°C.

The free energy maxima (known as free energies of activation) separating the various minima also determine the rate at which the kinetically metastable forms irreversibly convert to the thermodynamically stable form—a process which is accelerated not by a so-called morphogenetic field, but by heating, by contact with a solvent or moisture, by contact with a foreign substance (such as dust or hair), by melting and recrystallization, or by contact with a seed crystal of the stable form.

Indeed, the latter mechanism forms the basis of Kurt Vonnegut's famous novel *Cat's Cradle*, in which it is discovered that normal ice is actually kinetically metastable relative to a recently discovered polymorph known as ice-nine.[1] Unlike normal ice, which melts at 0°C at 1 atmosphere, ice-nine melts at 54.4°C or 130°F. Contact of water with ice-nine crystals eventually converts all of the water on Earth to a solid at room temperature, with predictable consequences for the existence of life.

As indicated in the recent monograph by Joel Bernstein,[2] the initial crystallization of a new organic compound often corresponds to a metastable polymorph with a lower melting point, and this, over the course of time, is eventually converted to the thermodynamically stable form with the higher melting point. He further notes that, once the thermodynamically stable form is prepared, it may be impossible to again prepare the initial metastable form (shades of Vonnegut!). Bernstein also notes that synthetic organic chemists are frequently unaware of the complications produced by polymorphism and cites several lawsuits over pharmaceutical patents based on a misunderstanding of this phenomenon.

References

1. Vonnegut, Kurt. 1966. *Cat's Cradle.* Holt, Rinehart and Winston.

2. Bernstein, Joel. 2002. *Polymorphism in Molecular Crystals.* Oxford University Press, p. 23.

William B. Jensen
Oesper Professor of Chemistry
University of Cincinnati
Cincinnati, Ohio

If morphic resonance causes the melting point of crystalline compounds to rise, then when a newly synthesized substance crystallizes for the first time, shouldn't the melting point rise as each successive crystal is formed, or is there a minimum number of crystals that must form before a measurable increase in melting point occurs? On the other hand, considering the vastness of the universe, it is highly unlikely that there is any compound that has not existed somewhere, either naturally or artificially, at some time during the past billions of years. Since Sheldrake's morphogenic fields propagate instantaneously throughout the universe without loss of strength, all chemical compounds should by now have reached their equilibrium melting points.

Art Davison
Edmonton, Alberta
Canada

Sheldrake's morphogenetic field: First, it sounds a lot like it came out of David Brin's novel *The Practice Effect.* Second, the authors mention that these fields (according to Sheldrake) do not diminish with distance. If this is true, then anything that has been crystallized *anywhere in the universe by anyone or anything* would contribute to this field. So if Sheldrake is right and this effect can be detected, then Earth is the only planet with life on it in the universe. And if it can't be detected, then aliens and life must therefore be somewhere else. So Sheldrake's fields are unfalsifiable if you belong to the UFOlogist crowd. . . .

William McDaid
Assistant Professor of Astronomy
Sacramento City College
Sacramento, California

I am not a chemist but I believe my modest background in physics qualifies me to comment on Sheldrake's statements and hypothesis, and I won't need pages of chemical analysis to do so. First, I believe we can pass over the comments regarding natural "laws" since the

scientific community is well aware of what is meant by "laws." I don't think the debate is about whether all natural laws are subject to change. It will be time enough to address that issue when and if it is determined that the melting point of some chemically pure substance is not constant over time when determined under standard conditions. If I were confronted with the claim that the melting point of a certain substance was not a constant I would want to know the purity of the sample, sample size, number of samples tested, test conditions, reliability of data, and the reputation of the tester before I accepted the claim as valid. An application of Occam's Razor would lead me to reject any conclusions as to the cause of the variance based on hypothetical morphic fields and morphic resonances, the operations of which seems to me to border on the paranormal and be akin to homeopathy.

Lynn A. Smitherman
Alpine, Arizona

Dinosaurs and DNA

Nothing makes me happier than hearing about people who try to introduce critical thinking to the general public ("Skepticism Under the Big Sky," September/October 2002). Although I very much enjoyed most of the authors' anecdotes I had to pause when they compared reconstructing a dinosaur using "a few fragments of DNA" with building the space shuttle using only "a few strands of wire and a piece of the tail fin." I don't think most people expect a piece of the space shuttle to contain a partial or even complete micro-blueprint of the entire shuttle, but they are aware that "a few fragments of DNA" may contain a great deal of information about a dinosaur.

Brian Fuss
Stanford Linear Accelerator Center (SLAC)
Stanford University
Stanford, California

Intelligent Design Debate

The summary in the September/October 2002 issue of the Fourth World Skeptics Conference quotes intelligent design advocate Paul Nelson as saying, "Why not suspend naturalism as an a priori hypothesis and let the evidence decide? The dilemma the scientific community faces is not being open to all possibilities." There is no indication that this criticism was answered or, if so, how.

Is it not about time for it to become generally recognized that Nelson correctly identifies why methodological naturalism should be omitted from definitions of science? Science is properly defined not by the "naturalness" of the concepts (e.g., matter and energy) used in its explanations, but by such "metaphysically neutral" criteria as testability, parsimony, falsifiability, fruitfulness, tentativeness, and an absence of preconception. Defined in this way, science is not subject to Nelson's charge that it fails to consider the full range of possible explanations.

Science currently uses "natural" explanations, not because of any a priori assumption, but because such explanations have been found to meet the above neutral criteria much better than all known alternatives, including intelligent design and other "supernaturalisms."

John G. Fletcher
Livermore, California

As a nonscientist I was both troubled and puzzled by Wesley Elsberry's explanation of the "wedge tactic" of the Intelligent Design movement. Troubled because I think that it implies a "descent" of science (after 500 years of "ascent") and puzzled over how this may be brought about. Can the creationists really make an "end run" around the scientific community and effectuate the political acceptance of ID theory in our educational system? If so, this would seem to represent some sort of Americanized version of "Lysenkoism."

In *The Demon-Haunted World* the late Carl Sagan described how the politically correct but scientifically erroneous genetic theories of Trofim Lysenko were imposed on the Soviet educational system by Stalin and later Khrushchev resulting in an egregious setback for genetic theory in that country. Sagan went on to observe: "Americans tend to shake their heads in astonishment at the Soviet experience. The idea that some state-endorsed ideology or popular prejudice would hog-tie scientific progress seems unthinkable." Yet, it seem to me, this is precisely what the Discovery Institute hopes to accomplish.

The remarks attributed to William Dembski were particularly frightening and, to me, demonstrate that he is neither a scientist nor a philosopher. He is a demagogue.

J. Alan Bock
Pittsford, New York

As I read the accounts of the ID versus evolution debate, I trembled at the notion that no one promoting evolution had the courage to ask a simple question of the ID/creationism proponents: If the goal is to teach ID/creationism in public schools along with or instead of evolutionary theory, which version of the creation story would the ID folks promote?

There is the Biblical version, the Native American version, the Hindu version, the Shinto version, etc. Surely schools teaching ID/creationism should be obliged to teach every version of the Creation story and let the students compare and contrast them. This way, intellectual honesty would be achieved.

Unless, of course, it's not really about intellectual honesty after all. . . .

David F. DeLuca
Hightstown, New Jersey

Questioning Psychic Research

Reading Gary E. Schwartz's Follow-up in your September/October issue, I was struck by the possibility that psychic researchers are running a con game. This would explain why they keep doing experiments which they know full well lack adequate controls against various forms of bias and cheating. It's always the *next* experiment which will correct the flaws. They always need just a bit more time . . . and funding. It seems a very easy way of making a living, and they receive the respect and authority afforded real scientists to boot.

Perhaps it's time for SKEPTICAL INQUIRER to stop playing along with these "researchers." If they have a history of nothing but positive results with flawed experiments, and have been told over and over how to design a proper experiment, they should be called out as intentional frauds.

Allen Gilliam
Winter Park, Florida

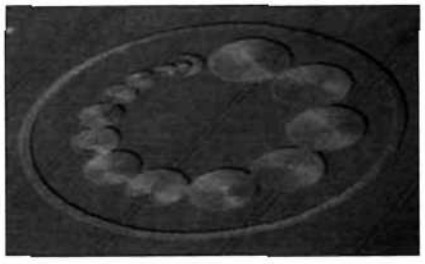
One question I have never had answered regarding mediums is why they have to ask questions of their "sitters" in the first place. Schwartz, explaining how the experiment attempted to eliminate sensory clues, states it allowed ". . . only yes/no responses from sitters. . . ." It seems to me that if someone is communicating with a deceased relative, there would be absolutely no reason to ask any questions or receive any confirmation whatsoever. A medium should be able to say something like, "I am talking with your mother Susan who says to tell your father Steve that she loves him and that he will be successful in his sales presentation at 1:00 P.M. next Tuesday. Also, she says to pass on her love to your sisters Sally and Sarah and your brother Steve, Jr." It seems strange to me that any medium would be able

to pick up only one letter of a name, a generic cause of death, an approximate date for some event, or any other fuzzy information. They should never have to ask the sitter for confirmation of any sort, especially for things that *the deceased would know with certainty.* If the deceased is actually speaking through the medium, they should be able to state the information unequivocally, shouldn't they?

Glenn Rimbey
Seattle, Washington

Crop Circles

I much enjoyed Joe Nickell's article "Circular Reasoning" (SI September/October 2002) about the artificiality of "crop circles" or agricultural graphics as photographer Yann Arthus-Bertrand (*The Earth from the Air 365*



Days by Arthus-Bertrand) terms them. A further interesting observation is how apparently law-abiding the creators of these graphics are. As noted by the BBC News (http://news.bbc.co.uk/2/hi/sci/tech/1496296.stm) and by myself on my Web site last year, at the time of the UK's hoof and mouth epidemic, where I wrote, "In general the aliens, great ones, magnetic vortices, human artists seem to have heeded the British government's strict rules regarding countryside access during the recent foot and mouth disease epidemic amongst livestock. Then, when the restrictions were lifted circles bloomed. . . ." It is good to know respect for the law still runs strong with who or whatever makes these *often beautiful designs.*

Thank you for SKEPTICAL INQUIRER, which I consider essential reading.

Ross Sargent
Folkestone, Kent
United Kingdom

I read with some interest Joe Nickell's typically excellent article on crop circles, and assume that this article was published in response to the recent popular movie *Signs.* I was somewhat disappointed that no one on your staff took on this movie in the same issue, since it presents and implies a number of anti-science viewpoints.

Spurred on by Joe's article, as well as generally positive reviews and box office longevity, I decided to wander over to the neighborhood Gigaplex and check it out. The film itself was a ghastly conglomeration of mushy illogic. The low point, for me at least, was the segment where the space aliens show up in earnest, and a TV commentator boldly announces that "everything in the science books is wrong." This nonsensical statement was repeated at least once in the course of the movie. I guess I've missed reading all those science books that deny the possibility of other life forms in the universe. And even if such a statement ever had appeared in a reputable publication, the arrival of aliens certainly wouldn't be cause to dismiss "everything" related to science. . . .

Robert W. Smith
Harahan, Louisiana

America's Public Schools

The Forum column by Donna Brown, "American Schools: How They Measure Up" (September/October 2002), theoretically offers information establishing that American schools stack up well with international competitors. Her column, in reality, does nothing of the sort. At best, it establishes differences in the American system as compared to foreign models. She then loads this "objective" piece with suggestions, without validation, of the high level quality of the American student and the schools that created them.

The SKEPTICAL INQUIRER should be true to its paradigm. The position that must be viewed "skeptically" is the ongoing rationalizations of the American educational "professionals." American students, whether they are compared by "average to average" or "top end to top end," perform at some of the lowest levels in the industrial world. Additional information confirms that our high school graduates know little about history (including our own) and all too many cannot make sense of the *New York Times.* Their math skills, compared to much of the world, are thin, with little potential to be applied. Most of the human events that preceded them on this planet are seen as boring and useless.

If the SKEPTICAL INQUIRER is to be true to *its mission it must realize that the absurd belief* systems that characterize America (probably the most primitive in the industrial world) are direct extensions of the absurdities taught in many of our public schools.

Andrew R. Joppa
Assistant Professor of
Management/Leadership
Mercy College
Dobbs Ferry, New York

Donna M. Brown includes one statement that every critic of the schools can endorse: "Cultural values in America uniquely impact upon how American students spend their time in school." It is clear that her own values, and those that prevail in the public schools today, assign a low status to academic knowledge. Students in other countries, she says disparagingly, are pressured to maintain excellent grades, while Americans are "broadly" educated through sports, clubs, community service, and part-time jobs. If, while in school, they do not acquire basic competence in science and mathematics, or even in reading and writing, never fear; they will pick it up later.

Where and how? From watching TV?

David A. Shotwell
Alpine, Texas

I have a problem with Donna Brown's analysis on American schools. My experience as an electrical engineer has made me come in contact with many American and foreign engineers and within the last fifteen years I have found that very few Americans want to major in the sciences or math. In the trade journal *Microwave Theory and Techniques,* there are literally no American authors writing the technical papers and furthermore when one looks at the university student and faculty members in the electrical engineering departments, you will see mostly people from Asia or Europe. I was told by an American high school student who studied in Germany for three years that his senior year here in the states was so easy he literally had to do nothing. So I wonder if the article really addresses the problem in this country with the science and math issues.

William J. Garner
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Brown's educant apology for the production of ignorant students consists of the same bunch of alibis and rationalizations we've been fed by education professors and the NEA for decades. We wouldn't need this litany of excuses for our schools if they measured up.

Her arguments have been devastatingly refuted many times. It would be fatuous and tedious for me to try and do it all over again in a letter. For anyone interested, I suggest they read *The Feel-Good Curriculum: The Dumbing*

Down of America's Kids in the Name of Self-Esteem by Maureen Stout, and *Inside American Education: The Decline, the Deception, the Dogmas* by Thomas Sowell.

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Junk Science Judo

After reading Terence Hines's vitriolic review of Steven Milloy's *Junk Science Judo* ("A Blunderbus Approach to Criticism of Statistics," September/October 2002), I can only conclude that Mr. Hines has a generalized contempt for books not aimed at fellow academics. He's got a right to his own preferences, of course, but his nasty review of Mr. Milloy's book did a great disservice to your readers.

Sure, the book failed to target all the junk science that deserved to be shot apart. That's because, first, such an effort would turn a quick primer into a very long book, which might chase away the readers Milloy was hoping to attract. Second, and more important, the author was primarily concerned with illustrating the typical problems with alarmist junk science (the common denominators, if you will), not with a point-by-point refutation of every crackpot study that has hit the media. Examples were used to illustrate the procedural criticisms, and only one or two were necessary to explain the weaknesses of this or that methodology. Still, Hines is clearly in error when he complains that the book ignored the hysterias surrounding electromagnetic fields surrounding power lines or breast implants. Readers will find reference to those issues on pages 76 and 13–15, respectively.

Hines's accusation that Milloy fails to understand or appreciate statistical analysis is absurd. Milloy does not argue that statistics are useless, just that they're not the whole story. Hines's suggestion that statistics can indeed be used to prove cause-and-effect relationships evinces the problem. There simply must be a biological explanation to support a statistical association in the field of public health or the environmental sciences. Despite what Hines would have us believe, inferential statistical analyses aren't particularly helpful in health studies because that form of analysis assumes that the data are precisely what they appear to represent. As Milloy points out time and time again, however, they frequently are not.

Can Milloy really be blamed for not inflicting on laymen a thorough discussion of inferential statistical analysis or p-values, particularly when one doesn't need to know the details of those fields to smell a scientific rat? When Milloy, for instance, writes "how researchers calculate the p-value is not important," he's not evincing ignorance or suggesting neutrality regarding what constitutes a good or bad p-value. He's simply telling the reader (who's probably a layman) that it's important for him to know what a p-value is and why it's important, but not how p-values are derived and all the issues attendant thereto. Hines is correct, of course, to point out that a lot of mischief can occur beneath that radar screen, but authors who write for laymen have to pick and choose their scientific battles lest they lose the audience they wish to keep engaged.

The same issue arises in Hines's argument that the book is derelict by not tearing apart the alleged economic costs that smokers supposedly inflict on society. While Hines is correct that there's much that could be said here, Milloy is writing a book about junk science, not junk economics.

In sum, hammering a book for being narrowly focused and aimed at laymen instead of being broadly focused and aimed at the professoriate is hardly fair. If Fred Seitz, a past president of the National Academy of Sciences, found the book unobjectionable from a scientific perspective, I suspect that fair-minded readers are safe relying on its contents as well.

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Those Ica Stones

Massimo Polidoro's "Ica Stones: Yabba-Dabba-Do!" (September/October) has a glaring omission. These alleged antiquities were first made famous by Eric von Däniken—and devastatingly refuted as evidence for "ancient astronauts" or anything other than fraud. Carl Sagan's PBS/Nova broadcast, "The Case of the Ancient Astronauts" (1978), showed von Däniken pontificating on several stones and then showed the stones being engraved and artificially aged (*sic*) by forgers. Shown the clear evidence, von Däniken seemed momentarily nonplused. This program was broadcast several times and then distributed as film and video for classroom use. It was one of the most devastating exposés of von Däniken's preposterous claims, and the Ica stones were one of the clearest major features which von Däniken could not refute or explain away, since we saw them being faked, firsthand.

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My Close-Up Encounter With An MFO (Misidentified Flying Object)

Nighttime. Sitting in my backyard. It had finished raining and the sky became clear. Looking between two buildings in the distance, I can see three, sometimes four, brilliant white spheres against the dark sky. They are like flattened circles—disc-like. This cluster of light-beaming objects are hovering—moving speedily back and forth but staying in the same general location. After looking for some time in wonderment, the skeptic in me investigates. Walking toward the fence staring, I think these glowing spheres look like unidentified flying saucers. Closer to the fence I discover that these things are ten inches away—a mere ten feet away from where I first observed them!

I assumed that the objects were far away and behaving like so many accounts of saucer ship maneuvers.

What happened? After a rain, if you look closely, you will find many spider webs being created.

One such web line B-lined from my patio umbrella to the fence (a distance of four feet). On it were several globules of rain, three or four of which were exposed to the light from a nearby street lamp.

With this new understanding, I kept looking. The globules of rain, too small to fall off by their own weight, moved back and forth as the web strand wavered in the gentle breeze. Close up, I could see the lamp gleaming along the single section of web string.

This illustrated to me yet another example of how people are fooled by what they see and how contrasting an alternative explanation can be found upon objective investigation.

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The letters column is a forum for views on matters raised in previous issues. **Letters should be no more than 225 words.** Due to the volume of letters not all can be published. Address letters to Letters to the Editor, SKEPTICAL INQUIRER. Send by mail to 944 Deer Dr. NE, Albuquerque, NM 87122; by fax to 505-828-2080; or by e-mail to letters@csicop.org (include name and address).

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The organizations listed above have aims similar to those of CSICOP but are independent and autonomous. Representatives of these organizations cannot speak on behalf of the CSICOP. Please send updates to Béla Scheiber, PO Box 4482, Boulder, CO 80306.

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A composite image of the Crab Nebula showing the X-ray (blue), and optical (red) images superimposed. The size of the X-ray image is smaller because the higher energy X-ray emitting electrons radiate away their energy more quickly than the lower energy optically emitting electrons as they move.

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